

REDUCING RISK: LOCAL KNOWLEDGE FOR LIVELIHOODS
SECURITY. A CASE OF UGANDAN SMALL HOLDER FARMERS

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Thesis presented for the degree of
Doctor of Philosophy

In the Faculty of Education,
University of KwaZulu-Natal.

Pietermaritzburg
2011

Abstract

My research examined farmers' knowledge and practices of farmers supported by Volunteer Efforts for Development Concerns (VEDCO), a non-governmental organisation in Central region of Uganda. Farmers in VEDCO were trained in modern farming methods, and were supposed to apply them on their farms. I worked with farmers over a period of eight months, which is a full agricultural year, to understand how farmers negotiated their way around risk in different seasons of the year using their own knowledge. I was interested in understanding the knowledge they drew on to survive.

The study was qualitative and employed a case study methodology. It relied on participant observation, focus group discussions, seasonality calendars, trends' analysis, informal interviews and document review to collect data.

The livelihoods of farmers and the extension education intervention by VEDCO provided an opportunity to understand the concept of knowledge, risk and livelihoods security. In this regard, the theories of Paulo Freire (1972, 1973, 1973a, 1985), Ulrich Beck (1992, 1998, 2000) and Robert Chambers (1983, 1991, 1995) formed the framework for theorising knowledge, agricultural extension education, risk and livelihoods in this research.

The thesis engages with what constitutes livelihoods for poor people and what that means for survival and risk reduction. In the discussion, it becomes evident that knowledge for poor people is worthwhile if it enables them meet their livelihood needs. In the discussion it also becomes apparent that poor people's livelihoods security is dependent on many aspects, and they pursue livelihoods security in a multi-disciplinary, negotiated manner that incorporates all those aspects. And unfortunately, sometimes the way modern agricultural extension pedagogy is planned and executed puts livelihoods at risk in a context where farmers' own local knowledge is not enough to confront the challenges they have to confront. The gap created by both local and modern knowledge processes resulted into the emerging of a subsistence risk society (Beck, 1992, 1998).

The thesis concludes with a discussion of a concept of *really useful agricultural extension education* drawn from the idea of 'really useful knowledge' (Jane Thompson, 1997). The emerging really useful agricultural extension education is drawn partly from the livelihoods'

analysis of poor people. And partly RUAEE is drawn from an emerging understanding developed, that adult education is not just about meeting needs, rather it is about confronting systems and structures that enable social injustice and livelihoods insecurity.

Acknowledgements

Working on this thesis has had its challenges and high moments, but on the whole, I am thrilled to end the long, lonely, but exciting journey.

I would like to thank the farmers in Luwero who allowed me into their lives, their fields and households. Thank you for your patience, understanding and generosity. My deepest appreciation to Volunteer Efforts for Development Concerns (VEDCO) for allowing me to work with them. To Dennis my friend and field worker for everything. My thanks to the field team at Kikooma for welcoming me as part of their team. Thank you so much.

With a lot of humility, I want to thank my dear supervisor and friend, Prof Astrid von Kotze for being the most wonderful supervisor I could have got. You have not only been a supervisor of my thesis, you guided, mentored, and caused me to think beyond what I imagined I could. Thank you for being patient with me and for believing in me even when I lost faith in my own abilities. The love and kindness you and your family showed me will keep you in my heart for good.

I would like to thank my Co-supervisor, Dr. Vaughn Mitchell John, for accepting to take on the supervision responsibility in the final stages of writing this thesis. The critical lenses that you brought to my work have enabled it reach its completion as a piece that I will be proud of for a long time to come.

Thanks to my dear friends Millicent, Annette, Tembi, Tanya and Kristin for standing with me through it all.

Last, but not least, I would like to thank my family for all the cushioning and support they gave me while I studied. To my husband, Andrew, thank you for taking care of the family while I was gone. Jessica, my dear sister, if it was not for you being there for my children and me, I would not have left to study. Generous, my nanny, thank you for giving us ten years of your life. To my dearest parents, Jolly and Frank, thank you for inspiring me all the time, every day. To Philip, Mark and Jesse, the brothers God has given me, the minimum has been set. To my children, Andrew, Arnold and Andrina, thank you for all the love.

I dedicate this thesis to my grandmother, **Erina Kagangari Boboyo**. Even if you passed on as I was finishing this page, I am humbled by your love, especially for the girl child and I know you would be thrilled by this achievement.

Declaration of originality

I Janice Desire Busingye declare that

- (i) The research reported in this thesis, except where I have indicated otherwise, is my original work.
- (ii) My thesis has not been submitted for any degree or examination at any other university.
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Signed: _____

Janice Desire Busingye

As the candidate's Supervisor I agree/do not agree to the submission of this thesis

Signed: _____
Dr Vaughn Mitchell John

List of abbreviations

APOs	Assistant Programme Officers
CAO	Chief Administrative Officer
CBA	Community based association
CBOs	Community Based Organisations
DANIDA	Danish International Development Agency
DFI	District Farm Institute
DFID	Department for International Development
EAP	Economically Active Poor
EW	Extension worker
FBE	Farm Business Education
GDP	Gross Domestic Product
GoU	Government of Uganda
HDI	Human Development Index
HIV/AIDS	Human Immuno-deficiency Syndrome
ICESR	International Covenant on Economic, Social and Cultural Rights
IKS	Indigenous knowledge systems
IMF	International Monetary Fund
LEISA	Low external input sustainable agriculture
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MDO	Market Development officer
MoFPED	Ministry of Finance Planning and Economic Development
MTCs	Medium-term Competitiveness Strategy
NAADS	National Agricultural Advisory Services
NEMA	National Environmental Management Authority
NGOs	Non Governmental Organisations
NRA	National Resistance Army
NRM	National Resistance Movement
OPM	Oxford Policy Management
PEAP	Poverty Eradication Action Plan
PLAN	PLAN International
PMA	Plan for Modernisation of Agriculture
PO	Project Officer
PRA	Participatory Rural Appraisal
PVLs	Programme Village leaders
RDEs	Rural Development Extensionists
RDP	Rural Development Programme
REFLECT	Regenerated Freirean Literacy through Empowering Community Techniques
RTCs	Rural Training Centers
RUAEE	Really Useful Agricultural Extension Education
RUCREF	Rural Credit Finance
SEI	Strategic Export Initiative
SLF	Sustainable livelihoods framework
T&V	Training and Visit
UBOS	Uganda Bureau of Statistics
UNDP	United Nations Development Programme
UPE	Universal Primary Education
VEDCO	Volunteer Efforts for Development Concerns
WCED	World Commission on Environment and Development

Table of Contents

Abstract.....	i
Acknowledgements.....	iii
List of abbreviations.....	v
Table of Contents.....	vi
List of Figures.....	viii
CHAPTER ONE.....	1
INTRODUCTION AND BACKGROUND TO THE STUDY.....	1
1.1 Introduction.....	1
1.2 Ugandan agriculture and agricultural extension: A historical perspective.....	5
1.3 The political economy of agricultural reforms in Uganda.....	11
1.4 The national context.....	13
1.5 The policy context.....	18
1.6 Why this study.....	22
1.7 A brief outline of the methodology.....	25
1.8 Conclusion.....	26
1.9 The outline of the thesis.....	26
CHAPTER TWO.....	28
LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK.....	28
2.1 Introduction.....	28
2.2 What is knowledge?.....	28
2.3 What is scientific knowledge?.....	29
2.4 What is 'unscientific' /indigenous knowledge?.....	32
2.5 From modernisation to alternatives: developing a way out.....	54
2.6 Sustainable development: an alternative.....	61
2.7 Sustainable development in practice.....	62
2.8 What constitutes knowledge in sustainability of livelihoods?.....	81
2.9 Local knowledge, risk reduction for livelihoods security: linking the connections.....	82
2.10 Emerging questions that guided the research.....	84
2.11 Conclusion.....	84
CHAPTER THREE.....	86
RESEARCH METHODS AND THE FIELD WORK PROCESS.....	86
3.1 Introduction.....	86
3.2 Research design.....	87
3.3 Selecting the host organisation.....	92
3.4 Selecting the study sites.....	93
3.5 Meeting with programme staff.....	95
3.6 Data collection.....	96
3.7 Data organisation and analysis tools.....	102
3.8 Ethics and ethical considerations in research.....	103
3.9 Limitations to the study.....	104
3.10 Conclusion.....	106
CHAPTER FOUR.....	107
A PRESENTATION OF THE FINDINGS.....	107
4.1 Introduction.....	107
4.2 Introducing the organisation: Voluntary Efforts for Development Concerns (VEDCO)	107
4.3 The locality of my study: an introduction.....	131
4.4 Agricultural activities.....	147
4.5 Hazards faced by farmers.....	151

4.6	Farmers knowledge and other strategies against hazards	181
4.7	Conclusion	200
CHAPTER FIVE		201
A DISCUSSION OF THE FINDINGS		201
5.1	Introduction	201
5.2	What are poor people's livelihoods built on?	201
5.3	Local knowledge and practices	209
5.4	Implications of poor people's resources to their risk profile and their limitations	219
5.5	The contribution of agricultural extension education to poor people's livelihoods. .	229
5.6	Systems, structures and risk in agricultural extension education	245
5.7	The emergent subsistence risk society	255
CHAPTER SIX		261
CONCLUSION AND RECOMMENDATIONS.....		261
6.1	Introduction	261
6.2	Towards 'really useful agricultural extension education'	261
6.3	Principles of really useful agricultural extension education	263
6.4	An engagement with the process of RUAEE.....	270
6.5	Conclusion	281
REFERENCES.....		283
Appendix I: Ethical Clearance		301
Appendix II: Informed Consent Form		302
Appendix III: Participant observation Guide. (Farmers).....		305
Appendix IV: Participant Observation Guide (VEDCO staff)		306
Appendix V: VEDCO's Organisational Structure		307

List of Tables

Table 1: A two-month income and expenditure pattern of a household, Kasala (2 adults, six children)	145
Table 2: Nature of land ownership among farmers	146
Table 3: Ownership of land by size	146
Table 4 Combined seasonality chart for all farmers	148
Table 5: Seasonal activity chart for cash crops	149

List of Figures

Figure 2.5.2.3-1: Adapted from Jaspars, (2006, p. 2).....	65
Figure 2.5.2.3-1: A visual presentation of sustainability	72
Figure 2.5.3.2-1: Meaning of risk.....	80
Figure 3.6.2.5-1: Farmers at a training in modern farming (1.04.08)	116
Figure 4.2.5.3-1: Reporting chain at the field level	109
Figure 4.3.5.3-1: Mapping hazards faced by farmers over an agricultural year.....	151
Figure 4.5.2.3-1: 'Leaves disease' that was attacking modern bananas (April 18, 2008).....	169
Figure 1: Judith's household risk profile	222

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This study explores the activities of smallholder farmers in Uganda in one agricultural year to understand the risks they face, the strategies they employ and how knowledge as one of their resources, helps them to avoid such risks in order to secure their livelihoods. This is set in the context of Uganda, where modernisation of agriculture in the form of new information, materials and agricultural practices, is being promoted to replace the 'old traditional' knowledge held by farmers. The argument given by the proponents of the 'new' information is that farmers are poor because they are ignorant of modern farming practices. The study arrived at answers to the questions it posed by studying the risks farmers face, how they managed them and what knowledge they relied on to avoid or manage these risks. This chapter introduces the state and nature of agriculture in Uganda and engages with the extension education that has been promoted hitherto. It then introduces the development and policy context in which the agriculture and extension education programmes are implemented. The chapter concludes with the development context and policy and challenges related thereto and justifies why it was important for the study to be conducted at the time it was.

1.1.1 The state of agriculture in Uganda

1.1.1.1 Uganda's dependence on agriculture

The agricultural sector in Uganda is the primary sector supporting the major part of the economy. For instance, economic growth indicators show that the agricultural sector contributes 16% of the Gross Domestic Product (GDP) (MoFPED, 2008) and employs 80% of the total labour force in Uganda (MoFPED, 2008; UBOS, 2002; Turner, 2005). In addition, 85% of the total population still depend on agriculture as their means for securing a livelihood. With this kind of dependence, it is important that the agricultural sector is supported to grow for an improvement in the well-being of the people. In fact, economic growth proponents have estimated that for the poverty rate in Uganda to fall below 20%, the agricultural sector must be growing at a rate of 6% per annum (MoFPED, 2008).

However, the opposite has happened, and the performance of the agricultural sector has been declining. For example, in 2002 it was contributing 45% compared to the current 16% to the

total Gross Domestic Product (GDP), but the number of people employed in this sector remained constant. The number of people earning an income or depending on agriculture for survival has not decreased (85%) and most of these are still smallholder farmers (62%) (MoFPED, 2008). However, unlike the colonial government which supported growing of food crops alongside cash cropping, the current policies are pushing the people into an economy where their entire focus is to be centred on cash crops (See 1.4.4; Youé, 1978).

People produce their own food in Uganda and this is a basic factor for having and maintaining life. In addition to food production, agriculture is so far the major source of raw materials for industrial growth, and of food supplies for all employed people, including those in the urban areas (UNDP, 2007). And the result has been recorded by the United Nations Development Programme (UNDP) which confirms that poverty among poor crop farmers has been on the increase. UNDP proposed that poverty reduction strategies needed to focus on improving agriculture in the rural areas (2005). In addition to poverty, the UNDP (2007) also reported that the number of people who cannot afford the recommended caloric dietary intake has increased from 58.7% in 1999 to 68.5% in 2006. What this translates into in real terms, is that people are failing to grow enough food to feed them and their families, and where they grow some food, it is not nutritious enough to meet the bodily needs to survive.

Furthermore, there have been increased famine incidences with some of the worst cases being reported in 2009 (Ssali, 2009; Kirunda, 2009; Butagira, 2009). Byres (1990) actually argues that Ugandans were able to escape the famine of 1970s and late 1980s because both urban and rural people decided to engage in subsistence farming to survive. He goes on to point out that by the late 1980s, it was estimated that 44% of the GDP was a result of the monetary economy and 90% of the activities were agricultural, and its resilience ensured the survival of most Ugandans. Considering that the government has aimed at transformation in the agricultural sector for decades now, is it feasible anymore to keep aiming for the same missed target without asking “Why?”

1.1.1.2 Government's expenditure on the agricultural sector

In addition to the above, government spending on agriculture has been reducing since 1981 (see UNDP, 2007). Currently the agricultural sector takes 5.1% of the government's budget (ibid). Even when the funds are given, they are focused on promoting commercial agriculture above the subsistence agricultural sector. For instance, MoFPED (2008, p.14) stressed that:

Approximately four out of every five households in Uganda are involved in agricultural activities... The majority of the subsistence farmers lack requisite skills and knowledge, including suitable inputs, and consequently realise low yields.

Government's proposed response to the lack of skills and knowledge was to increase spending through the National Agricultural Advisory Services (NAADS) to provide extension services and to provide "high yielding seeds and drought resistant planting materials and improved breeding stock" (MoFPED, 2009, p.14) However, why would the government, going by the calculations given by the Ministry of Finance, agree to sell extension services to farmers in a sector that supports 80% of its population?

1.1.1.3 The subsistence sector in Ugandan agriculture

Ugandan farmers have maintained smallholdings and are still producing for subsistence and selling the surplus. Many of these farmers rely on their own ability to survive as extension services reach only 5-10% of the farmers and the rate of adoption of new technologies is 30% (MoFPED, 2000). What is surprising is that the government has never shouldered any blame for the failed programmes; the blame is always placed on the farmers. The reasons that have been given to explain the poor performance have never put the responsibility on the government, but on the farmers or on the weather as we shall see in the schools of thought that seek to explain this anomaly (MoFPED, 2008). Several arguments have been advanced to explain the poor performance and the benefits that farmers will receive from market-led reforms in the agricultural sector.

1.1.1.4 Natural disasters and agriculture in Uganda.

One of the government's positions on the poor performance of the agricultural sector is that it is due to the many disasters that have hit different parts of the country in the form of droughts, floods and wilt diseases, for some of which a cure has not been found (MoFPED, 2008). For example, in 2007 the eastern region experienced severe floods that left many people homeless, and others had to build their lives afresh. The northern region has been at war for 20 years and has experienced prolonged droughts that later spread to other parts of the country. The central and western regions were also hit by banana and cassava wilt for which no cure could be established (Masiga, 2009). These disasters left many people hungry and homeless and have contributed to the lowered agricultural production, and thus increased vulnerability for people.

While this position acknowledges that farmers are at high risk of uncontrollable natural disasters, it also avoids the fact that these hazards are not experienced by farmers in the same measure. They develop different strategies that are bundled up in the 'lack of appropriate knowledge' category, along with the knowledge they have. But there are questions that are not asked. How do farmers keep up with production in the middle of these disasters? Will the modern knowledge contribute to production that supports farmers' livelihoods or will it weaken the farmers' capacity to recover from such disasters?

1.1.1.5 Adoption of modern technologies provided by extension services

The second and dominant position that has formed the basis for most of the changes that have been promoted by government, is the idea that farmers have deliberately refused to adopt modern technologies provided through extension services, be it private or public (Mangheni, 2007). With lack of explanation for farmers' behaviour, the government has assumed that farmers lack the 'right' knowledge, skills and technologies to produce for the market. Masiga (2009) for instance, argued that people have a languid attitude towards life because they are 'living on the land' but they are not producing enough crops and choose to sell the little they produce to the middlemen. The failure in this case is a result of the 'traditional' agricultural methods they are using and the knowledge they hold as being traditional, backward and too unscientific to lead to any high yields (ibid). The thinking behind the government's policy is that agriculture is valued as a catalyst for economic growth and the major aim of the development policy is to ensure that resources are transferred from the traditional agricultural sector to the industrial sector (Scoones et al, 2005).

The government and its partners who adopt this position have invested in programmes and plans that teach the farmers new methods of farming, use of improved technology, and use of improved/hybrid seeds for planting (MAAIF, 2000). This is besides the fact that this strategy has registered failures since colonial times when Uganda's subsistence sector was allowed to exist alongside a commercial one (Youé, 1978). To fit in with the norms of modernisation to build a private sector led economy, the agricultural extension services have also been privatised and are supposed to be provided on a demand-supply basis (UNDP, 2007) (see the NAADS, section 1.3.3.1). But consider the fact that only 5-10% of the farmers have access to extension services (Kyaddondo, 2004). With the challenges they face, they must surely need some form of extension education and support. The government had been providing extension services to farmers with the purpose of transforming the agricultural sector, since the

colonialists came to Uganda. The next section examines the provision of agricultural extension to demonstrate how it has changed or not and the reasons behind it.

1.2 Ugandan agriculture and agricultural extension: A historical perspective.

1.2.1 The traditional/pre-colonial agricultural system

Like most African countries, Uganda was a traditional community that depended solely on barter trade of crops and other types of produce. The crops that were planted included what has been referred to as 'orphan foods', i.e. cow peas, beans, finger millet, cassava, sweet potatoes and sorghum, among others (Ssali, 2009). Food was then bartered in exchange for what one farmer needed from another, meaning that there was trade going on. Production was a way of life, not a means of making a living, and it was a passionate part of their existence that gave life to all forms of being (Roberts, 2008). All the processes involved in the production of food were shared between families/communities. Food production was part of a wider culture and brought people together to talk and listen to one another. People took as much from the soil as they put back to ensure that the next generation would also produce food to feed everyone. Labour was also an exchange 'commodity' in that people exchanged labour and helped each other out; more in the sense of working on 'our' field/food source not hers/his.

In the pre-colonial era and as with most of the services, extension education was part of life, provided by experienced people within the community. In this way everyone was a learner and all had potential to teach. It was all part of life and as Nyerere (1967) explains, skills were taught in the homes and on the farms, making the education directly relevant to life in a particular society. Knowledge in this era was part of the community and the whole system of life. Its role was mainly to lead to improvement of life and to enable the young to survive in their communities.

1.2.2 The colonial agricultural system

With the coming of missionaries and colonialists, the traditional agricultural system was one of the first to be affected by colonisation. According to Roberts (2008), when Europeans introduced plantation/field agriculture in their colonies, as they did in Uganda, a foreign system of farming was launched. Farming ceased to be an activity that brought people, their culture and their land together. The view that some crops had a cash value set the stage for divisionism in the communities based on who planted what. Among the crops the colonial government concentrated on and which were serving the interests of the British government

was cotton in 1902 in Buganda (Mamdani, 1975). The introduction of cash crops brought into being the view of agriculture, not only as a means for securing food, but also as a means of making money. Later on, coffee was added to cotton and then tea and sugar cane were added to the list. The rest of the food crops that had been staple to the Ugandans were abandoned, because their exchange value was not financially valuable and they came to be known as 'orphan foods' (Ssali, 2009). Commoditisation of food marked the beginning of tensions between food crops and cash crops. This marked the beginning of the debates of 'food first' or 'income first' in managing agricultural systems. Cotton was the major cash crop of the Ugandan economy and by 1920, cotton trade accounted for 90% of the entire outward trade, with coffee second at 2% (Youé, 1978), which was followed by many other cash and food crops that have now been adopted as cultural and traditional foods (Mamdani, 1975; Youé, 1978; Taylor, 1986).

The world trade depression of the 1920s, which affected the prices of cotton, paved the way for people's renewed concentration on food crops and coffee through a peasant mode of agriculture (Youé, 1979). This depression, according to Youé, is what proved the resilience of the peasant sector and caused the then governor to focus on this sector as the lead in the agricultural industry (1979). The then Buganda kingdom was enthusiastic to produce more cash crops and started taxing the cash crops that farmers were producing by instituting a tax called 'nvujjo' on farmers (Mamdani, 1975, p. 30). The more a farmer produced the more he was charged. Later when farmers raised grievances in response to the 'nvujjo' tax, farmers were rewarded with ownership of land on which they were farming to encourage them to keep producing. This was beneficial to the farmers in that they could keep producing their own food as long as they produced cash crops for their colonial masters.

After the Second World War, there was an increase in the production of cash crops (Wrigley, 1959), but this dropped in the 1960s. By the time Uganda gained her independence in 1962, agriculture was the leading sector producing much income for the country, but the farmers had learnt to rely on both cash crops and food crops because the slump in coffee prices had shaken the system.

The colonial period marked the first attempts at making extension services formal, with the setting up of the District Farm Institutes (DFIs) between 1957 and 1962 at Ngetta, Ikulwe, Mukono, Tororo and Kyambogo (Atim & Ngaka, 2004). These were under the Ministry of

Agriculture and their mandate was to train local government staff and conduct short courses for chiefs and progressive small-scale farmers. Along with DFIs, rural training centres (RTCs) were also established to provide community-based extension services to all those who were willing to join them (ibid, 2004). The RTCs were demonstration centres for new methods and technologies for farmers. This marked the beginning of separating non-formal agricultural extension education from life as it was in the traditional system, where it had been informal. Knowledge in this era started to succumb to the demands of the colonial masters. The knowledge that was being promoted and taught by the DFIs was to disseminate new modern knowledge to the farmers. The informality that had characterised the farmers' local knowledge started to be eroded, to pave way for formal "schooled knowledge".

1.2.3 The post-colonial agricultural system

To counter the fall in prices, and to protect the interests of farmers in the new independent Uganda, marketing boards were introduced in 1966-67. Marketing boards were supposed to purchase produce from co-operatives and assist the state in the control of marketing food commodities in the country. Their major role was to prevent the effects of price fluctuations that had hurt the farmers' production in the 1920s and early 1960s (Mamdani, 1975). Reserves were also created to ensure that farmers had food during difficult times of food shortages.

In 1971, a military coup brought Idi Amin into power. For the next 10 years, agriculture which had been the sector that was contributing much to the economy, suffered at the hands of mismanagement and uncertainty. The farms that had been previously owned by the Asians and Europeans were given to friends and relatives of Idi Amin arbitrarily. In this period, Asians and Europeans who were employed in the entrepreneur and administrative sectors of the economy were all expelled from the country. This caused a slump in many of the sectors, the prices of the major commodities started falling, and inflation skyrocketed. Coupled with the sanctions that Uganda attracted in retaliation to the expulsion of the Europeans and Indian, this would have a lasting effect on operations in all sectors of the economy. Farmers at this time had to be forced by the government, by threat of imprisonment and cash fines, to produce some of the crops that they previously produced (Mamdani, 1975). People were forced because the President Idi Amin's government policies had led to high inflation rates amidst sanctions from other countries. The government then blamed the worsening inflation on people who were not producing as they used to, disregarding all the other external factors that had an impact on the inflation rates. Yet farmers were trying to avoid producing crops that they could neither sell nor

eat. It is worth noting that at the time people were being forced to produce, many countries had boycotted buying Ugandan products to protest against the atrocities Amin was committing.

At this stage, because crops that were previously food crops had also become cash crops, this had an effect on their prices. As people were producing their own food, the economic melt-down affected production and import of commodities like sugar, soap and others that were not made in Uganda. People had and could afford to grow food. However, due to the decline of the marketing system, people looked around for crops to sell and those available were the food crops that were being produced then. This was because even after being forced to produce, the government had failed to pay them through their co-operative unions as there was no money. Cash crops then turned into sources of income and this went on through the Obote II era. In the early 1980s, when the Structural Adjustment Programmes were introduced, the food crops were already turned into cash crops and the numbers of people who could not afford food since then has been on the increase. During the economic slump of the 1970s, the marketing system declined, prices of cash crops fell and those who had already supplied agricultural products through their co-operative unions could not receive their payments on time.

With much control in the hands of the state, extension services were provided as part of the government's social services. Since the major pre-occupation was on production of cash crops, extension services remained under the formal institutions, the DFIs, who then transmitted the technology and skills to farmers (Atim & Ngaka, 2004). In the 1970s, because of the political turmoil, extension services also suffered a set-back and were only resurrected in the 1990s.

In 1992, along with other Structural Adjustment Programmes, the World Bank started implementing the Train and Visit (T&V) system of extension which Uganda also embraced with modifications under the Headstart Project (Gahakwa-Rudakemwa, 1996). The T&V was based on the assumption that:

A lack of management orientation of extension and its poor links with research were the major reasons for inadequate transfer and adoption of technology. The main features of the T&V system included: A single line of command for extension; a rigid bi-weekly schedule of visits to a defined fixed list of contact farmers; a fortnightly regular training of village level workers, regular interactions between extension workers and scientists in research stations, and focussed approach on dissemination of information

on technologies in major crops. After the withdrawal of World Bank funds, the T&V structure collapsed everywhere, especially due to its high costs and lack of convincing evidence of its impact. (Sulaiman & Hall, n.d)

In the T&V system, the assumption was that those who were visiting had the right knowledge and those who were being visited were supposed to listen and do as they were told. Extension workers had a pre-determined schedule and were to meet specific outcomes, which would help them measure the absorption of such knowledge by learners (farmers).

1.2.4 The current agricultural system

Since the 1980s, the agricultural system has remained somewhat similar with the rural areas, like Luweero, being the producers of food and urban centres being net food consumers (UNDP, 2007). This has been attributed to the historical factors that shaped food production with a slight improvement in the 1980s, but with farmers still finding it safe to engage in food crop production. For example, by 1990 it was estimated that food production accounted for up to 93% of all land under cultivation and 80% of the value of production. According to UNDP (2007), throughout the 1990s, the government pursued a liberalisation strategy in all sectors, including the food sector. This was the time when the agricultural input and product subsidies that used to be given to farmers earlier, were all cut off to reduce government spending. Spending on agriculture started reducing, even if it was the sector that contributed the biggest proportion of the Gross Domestic Product (GDP) share and employed more than 80% of the population. This was a major shift in the government's thinking, where programmes that targeted farmers emphasised production for the market. The social culture around food production was no longer relevant to a market-led agricultural development strategy as the emphasised role of agriculture was more commercial than social.

In 2000, the Plan for Modernisation of Agriculture (PMA) was finalised and was supposed to lead the way to transform the agricultural sector into a "modern science-based, market-oriented agriculture capable of sustaining growth in the sector and raising incomes of farm families" (MAAIF, 2000, p. 3). The understanding here as regards food security is that if people can raise their incomes, it will help them to access and buy food. Following this argument, the government of Uganda has thrown its weight behind campaigns that aim at increasing incomes of smallholder farmers as a way to ensure food security.

Currently, the government is very clear on the intentions of agriculture being to produce food or crops that will earn the country income, rather than ensuring production of enough food to feed the population. Unfortunately this is still an aspiration and when the PMA was evaluated in 2005, it was found that it had created its own group of farmers who were referred to as the 'economically active poor' (EAP). The EAP farmers were those who were able to engage with the science-based knowledge that was being passed on and who had resources to try out new knowledge (DANIDA, 2005). The PMA put the ability of people to provide and have food for themselves and their families, in the market, further increasing their vulnerabilities to food shortages, price fluctuations and inflations. What has not been established is how small holder farmers are coping and what safety nets they have developed for themselves.

In the field of agricultural extension, the T&V system had already failed the farmers and the government, so other means were devised to fill the gap. This time however the government had embraced the Structural Adjustment Programmes. So in 2000, plans were finalised and under the PMA, and the NAADS, a privatised form of agricultural extension was launched (Mangheni, 2007). The basic assumption was that the extension services would be provided on demand to those farmers who could afford to pay for them. This created a gap that was to be filled by NGOs because as much as people could be able to demand for services, the resources to pay for these were not at their disposal. This is the extension system that is still operating in Uganda, with the major aim of producing for the market. It supports and protects commercial farmers who are ready to produce for the market.

Alongside the formal government-supported agricultural extension system are farmers who understand their circumstances better, feel the famine when it strikes, and experience the vagaries of weather first-hand. This study intends to establish farmers' contribution to the agricultural extension education provided by NGOs and government. Furthermore, it will be interesting to find out how adoption of modern methods or non-adoption has reduced food availability. This is because in 2009 alone, there were more famines reported than there have been in the past 10 years in Uganda. (Masiga, 2009; Ssali, 2009). These food shortages have occurred amidst implementation of agricultural reforms aimed at fighting hunger as part of meeting Millennium Development Goal 1. This study's intention was to examine one intervention that attempts to improve the extension system. I will now describe the national context so as to understand the atmosphere in which agricultural extension education is supposed to be provided.

1.3 The political economy of agricultural reforms in Uganda

Since the colonial period, Uganda's agricultural sector has seen reforms, one after another, some pro-farmer and others pro-government. The impact of these reforms on the agricultural sector has been profound, and the resulting contradictions have formed the basis for yet more reforms. However, people's lives and their dependency on agriculture have not changed as I will show below.

During the colonial period, reforms that were introduced by the colonialists had one intention: to make Uganda as economically independent as possible so that it would make tangible contributions to the treasury of the colonial government and to Britain's textile industry (Byrnes, 1990). During those days however, the reforms in the agricultural sector were a prerogative of the governor. Even though Youé (1978) and Taylor (1986) disagree on the part played by the governors in the choices between plantation agriculture and peasant-led agriculture, they agree that the governor formulated and implemented the agendas of their assigned colonies. Therefore, the economic reforms of the time informed planting, marketing and selling of products in the agricultural sector. This was alongside farmers' indigenous systems that fostered the planting of their own food and sales of the surplus.

During the 1960s, when Uganda gained its independence, many of the sectors that had been previously controlled by the colonial government were reverted to the government of Apollo Milton Obote. Co-operatives were still active in most places in Uganda, but only for selling cash crops. Prices were set and controlled by the state, especially for those cash crops that were major export crops.

Under Idi Amin's regime in the 1970s, shops and plantations were given to people as he, the president pleased. The resulting mismanagement was because most of the Ugandans who were given shops and plantations had no management experience. Finally, plantations and shops collapsed and because of lack of produce, there was no money in the economy, production reduced tremendously and prices of commodities fell sharply (Byrnes, 1990). But even when this happened in the agricultural sector, the peasant sector which was resilient and had survived through the times of hardship and difficulty was still able to produce food for people to eat.

In the early 1980s, Obote II's government came into power and under the guidance of the International Monetary Fund (IMF), decided to embark on the implementation of loan conditions to qualify for IMF loans. The government removed price controls, increased agricultural producer prices and set strict limits on government expenditure. This became even more severe when the IMF withdrew its support following a budget policy disagreement with the then short-lived presidency of Tito Okello Lutwa in 1984. Coupled with civil war around the country, this contributed to a major slip in the economy, culminating in the take-over by the National Resistance Army in 1986 (Byrnes, 1990), later renamed the National Resistance Movement (NRM).

The NRM government found itself faced with many economic problems, most of which were as a result of the effects of war. It embarked on what Byrnes (1990) refers to as a Rehabilitation and Development Plan (RDP) from 1987 to 1991. This was to be done with support from the IMF, and had conditions attached to it. The Ugandan currency was devalued and a commitment to budgetary restraint was to be exercised. Prominent among other reforms that were to affect the agricultural sector; the infrastructure for traditional exports was to be reconstructed. The government was supposed to introduce a free food market, allowing both internal and external competition, and public enterprises were to be privatised.

However, the reforms were not implemented in the expected timeframe and some of these delays had a direct impact on the agricultural sector. For example, the state marketing boards remained active in trading of food crops, but finally their role died out, leaving a vacuum. With absence of marketing boards, farmers were left to do their own negotiations and linkages with markets. The state was no longer responsible for marketing produce for the farmers. In fact, this affected returns that farmers could get for agricultural produce affecting growth of the economy. For instance in the early 1990s, the growth rate of the economy was at a low of 6%, a growth rate that also worried the government (MoFPED, 2000). The strategy that was devised to increase the growth rate, however, left a lot to be desired. The government was convinced that liberalisation would provide solutions to its ailing economy. It is this liberalisation strategy that has continued to be implemented by the government through the 1980s to date.

1.4 The national context

1.4.1 The poverty profile

Over the years Uganda has boasted about the steady economic growth and macro-economic stability, particularly in the 1980s, which has been attributed to the macro-economic policies of the time and implementation of the Structural Adjustment Programmes around the same time. For the United Nations Development Programme (UNDP) (2005), this growth is responsible for the reduction in the number of people living in absolute poverty. However the overall poverty situation in the country, as derived from the Human Development Report (UNDP, 2007), gives a clearer background to the risk profile that I will address later.

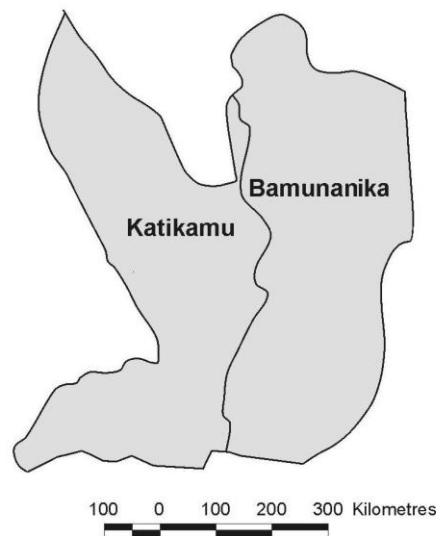
Uganda is still considered to be among the developing poor countries in Sub-Saharan Africa (UNDP, 2005). This position is attributed to a number of factors that culminate into the Human Development Index (HDI). For instance, according to the UNDP, the number of people living in abject poverty had increased from 7.5 million to 10.5 million in 2007 (2007, p. 94). Additionally, while there have been innumerable efforts to transform the economy, the rural population, the majority of whom are smallholder farmers, have not realised much improvement in their welfare. To illustrate this, UNDP shows that the number of people living below the poverty line in the rural areas has been increasing steadily from 45.2% in 2003/4 to 53.1% in 2005/6 (2007, p. 48). In turn, this has led to the overall decline in the agricultural sector growth since 2003/4 from 3.8% to 1.5% in 2004/5 and another decline in 2005/6 to 0.4%, which has been attributed to the drought conditions (ibid, p. 49). Decline in the agricultural sector has translated into lowered levels of food crop production (ibid, p. 49), but surprisingly, while production of key food crops by acreage has been rising, the output has been on the decline (UNDP, 2007). Even then the types of crops grown are not based on their nutritional value, for example bananas, which have a low nutrition value comprise 44.6% of food crop carbohydrate production (UNDP, 2007, p. 75). This has resulted in continuous problems of malnutrition and sometimes famine and hunger in the country because, according to UNDP, it is the key food crops that hold the key to the improvement of food security and nutritional status of rural populations. Citing a Uganda National Health Survey (2000), UNDP pointed out that 8% of the households ate one meal a day while in 10% of households children aged five years and below did not eat breakfast, putting them further at risk of malnutrition/under nutrition and the resultant complications (UNDP, 2007, p. 94). Under the circumstances, the report shows that 40% of all deaths of children of five years and below is due to under- and malnutrition.

This has placed Uganda amongst the poor countries in the world, with improvements here and there. For example, while the number of Ugandans living below the poverty line had decreased, this steadily started increasing from 35% in 2000 to 38% in 2004. On the whole, when measured using the HDI, the results showed that Uganda's economic growth has failed to translate into better lives (UNDP, 2007).

1.4.2 Climate

Uganda stands between 4°N and 1°S, stretching from 25.2 to 35°W, and covers a surface area of 241,500km². Due to its position, Uganda enjoys two seasons of moderate rainfall ranging between 600mm and 1100mm per annum. In agriculture, this translates into two seasons of planting and harvesting and the agricultural calendar is guided by these weather patterns. However, according to Magrath (2008), this has been altering due to the present climatic change, which has resulted in erratic rainfall patterns and unexpected droughts which have led to a drop in crop yields and plant varieties. For Magrath (ibid), this has left people susceptible to weather shocks and the result has been famine in different parts of the country and seasonal food shortages in some historically food sufficient parts (Butagira, 2009), further escalating the incidence of food poverty.

1.4.3 Geographical location



Uganda is landlocked and is bordered by Sudan to the North, Kenya to the East, Tanzania to the South, Rwanda to the South West and the Democratic Republic of Congo to the West. The political turmoil and wars that have been taking place in the northern region of the country and other neighbouring countries have not been favourable for agriculture, accounting for some food shortages and destroying people's livelihoods. The post-election violence in Kenya in 2007 affected the flow of commodities and food from and to Kenya which impacted on many aspects of the Ugandan market, especially on food. These have contributed to some of the manifestations of poverty in Uganda, in the form of lowered production and food shortages.

1.4.4 Population

Population and agriculture has been one of Uganda's challenges, because the size of land is not increasing, but the size of the population has been increasing steadily. In 1948 Uganda had a population of 5 million and in 1980 it was 12.6 million people. In 1991, the population stood at 16.7 million and in 2007, it was 29.6 million people, of whom 47.3% were children. This has increased the number of people depending on the land, with a density of 18 people per km² in 1931, to 113 people per km² in 2000. For a population that survives on land as a basic means of a livelihood system, this increase in population has overstretched the available land resources. Big families have had to depend on small pieces of land on which to farm, because as National Environmental Management Authority (NEMA) (2001) expressed, while 84% were in the rural area, only 62% of these own more than one hectare of land. This has led to much land fragmentation and over-cultivation of land, which has led to crop failure, meaning that the numbers of people going without food has also increased steadily with the increasing population.

1.4.5 Health

Poor health and poor food systems are synonymous, and the changes in the agricultural sector have had a profound effect on people's health and vice versa (UNDP, 2007). In the absence of nutritious food, the health system is strained, requiring spending on diseases that result from poor nutrition. In Uganda, health services have been decentralised to the local structures in the communities, especially for the management of malaria, childhood illnesses and HIV/AIDS. With the introduction of the Structural Adjustment Programmes in the 1980s, the health sector experienced a reduction in budget allocations and patients were then required to cost-share such health expenses with the government. More private health units started mushrooming and developed into the current system where accessing quality health care is determined by how much one can afford to pay. This constrained the livelihood systems of the poor, because it

meant that resources meant for food or education had to be diverted to pay for health services. And the lack of food to eat translates into repeated visits to health units because the root cause of the problem still exists.

1.4.6 Education

In Uganda, obtaining formal education is understood as an asset for any livelihood system as it is an investment in the future. This drives people to sell their assets to afford a private education for their children. In principle this is partly supposed to contribute to the government's purpose to modernise the economy, which identifies with Inkeles' (1974) argument. Inkeles argued that schools are regarded as the engines of economic growth because they focus on imparting skills, knowledge, behaviour and attitudes that provide a fertile ground for modernisation to occur. In another way, it lays the foundation for seeing modern knowledge as being more acceptable than traditional knowledge. Actually, Ssali (2009) has argued that Ugandans have tended to ignore the traditional foods and diets because they are what he termed 'educated and modern' which has put them at risk of many lifestyle diseases. Currently, Universal Primary Education has been instituted to increase the enrolment of children and the Universal Secondary Education is also in its early stages of implementation. At tertiary level, the government is currently concentrating on financing science-related disciplines because they are seen as the link lacking for industrialisation and modern technology to be utilised. The school system therefore is tailored to the wider development plan, which is modernisation of the Ugandan economy.

1.4.7 Administrative structures

Uganda is governed under a decentralised system of governance in which the powers to deliver and implement programmes in the social sector have been given to the districts. Currently, the country is divided into 80 districts with the central region, where this study was conducted, divided into 16 of the 80 districts. Each district is headed by a chief administrative officer and is under the Ministry of Local Government. A district is responsible for its own development plans and budgetary obligations, with a fraction of it coming from the central government. The district local governments have powers to make policy and regulate delivery of services, including overseeing the activities of the NGOs and CBOs. Each district is subdivided into smaller administrative units called councils, from Local Council IV at the county level, Local Council III at the sub-county level, Local Council II at the parish level, to village council which is the Local Council I. The argument advanced for creating new district units is that the divisions ensure effective service delivery to the smallest unit in the community. For

example, at each district there is an extension agent and community development officer assigned to a county who takes charge of provision of extension services in their area. However, the structure is such that authority flows from the top to the bottom, making people receivers of information/instructions, a structure that supports the modernisation principles of top-down promoted by government.

1.5 The policy context

This section will describe some of the policies that form the legislative context within which agriculture extension work is carried out in Uganda. It will particularly examine the Food Security and Nutrition Policy, the Poverty Eradication Action Plan (PEAP), and the Indigenous Knowledge Policy.

1.5.1 Food Security and Nutrition Policy

The government has signed and ratified most of the laws of the United Nations on promotion of food security, domesticating this into the Ugandan constitution in 1995. The Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights (ICESR) are some of the international obligations that Uganda has ratified to support efforts to create food security.

The purpose of this policy is to ensure food security and adequate nutrition for all people in Uganda, for both their health and economic well-being. The major areas of focus are food supply and accessibility, food processing and preservation, food storage, marketing and distribution, external food trade, food aid, food standards and quality control. Practitioners have argued that despite the low levels of food production (below global standards), Uganda has the potential to produce enough food to feed everybody at all times, at adequate levels of diet, if given the right support which is still lacking (Mpirirwe & Ddamulira, 2001). For instance, Ssali (2009) argued that Uganda produces enough food to feed its populace, but it is because people have ignored their traditional foods, like millet, sorghum, African rice, sweet potatoes, cassava and others, that they are no longer able to feed their families. Other scholars however have argued that farmers are facing numerous challenges that are due to causes over which they have no control (Babikwa, 2004; DANIDA, 2005). According to Babikwa (ibid), farmers have had to face challenges such as infertile soils, environmental degradation and high costs of social services. Given that some of the challenges are caused by natural phenomena, farmers have found that even the local knowledge which used to help them deal with such hazards is no longer effective. Yet the support given by government has tended to support farmers who

produce for cash. One wonders what the farmers, with such limited support, do to deal with emerging challenges. For instance, what support then is given to farmers who produce food to eat? Does the fraction of food they produce count less because it has a high use-value as opposed to exchange value?

UNDP (2007) pointed out that there were contradictions that arose between market-oriented systems and people-oriented systems, especially in production of food crops. Scholars like Roberts (2008) and Scoones et al (2005) argued that it is very difficult for market-led strategies, like those being followed in Uganda, to lead to food security. Akhter (2001) made a distinction in the understanding of food security between the North and South. Akhter explained that the way the North and the South understand food systems is different. To the North, food security is ensured through the market, and is both a political weapon and a tool of control and for accumulating more profit. To the South, food is life and a part of people's livelihood. In Uganda however the two strategies are expected to work hand in hand. The question that the current study hopes to address as a result of the above arguments is how the two systems work hand in hand for each to achieve its aims.

1.5.2 The Poverty Eradication Action Plan (PEAP)

The PEAP is the overall guiding framework for planning and implementation of all development programmes in Uganda. The PEAP was formulated in 1997 and finalised in 2000 with the major aim of reducing the number of people living in poverty from 40% to 10% by 2017 (MAAIF, 2000; Muduuli, 2001). This is higher than the Millennium Development Goal (MDG) target of 28% by 2015 (UNDP, 2005). The underlying assumption of the PEAP was that the policy must enable the poor to benefit from market opportunities while improving the quality of basic social services (Oxford Policy Management, 2008). Formulated in 2000, PEAP identified four pillars:

- a) Rapid and sustainable economic growth and structural transformation;
- b) Good governance and security;
- c) Increased ability of the poor to raise their incomes; and
- d) Enhanced quality of the life of the poor (MAAIF, 2000).

I will focus on the first pillar because it is within this that agricultural extension is implemented through the Plan for Modernisation of Agriculture (PMA).

1.5.3 The Plan for Modernisation of Agriculture

The first pillar focuses on the transformation of the agricultural sector through modernised agriculture. The PMA's major objective is to transform farmers from being subsistence smallholder farmers to being commercial farmers. This is based on the following assumptions:

- a) The modernisation of agriculture will speed up the process of transforming the economy from agriculture to non-agriculture more rapidly.
- b) Modernisation will free more labour from agriculture to non-farming, rural-urban activities.
- c) With increased productivity due to modernisation, food prices for the urban population will lower, thus increasing demand for food, which will be translated into increased incomes for the poor who grew the food. (MAAIF, NAADS Master Document, 2000).

The major argument fronted by the PMA is that poverty and the lack of progress in rural areas is a result of a persistent peasantry and the subsistence form of agriculture (MAAIF, 2000). Kyaddondo (2004) argues that when modernisation is viewed this way, it translates into upgrading and reconstructing agriculture in the face of adverse poverty and years of deteriorating infrastructure. In the Ugandan context, this shows an existence of two worldviews about agricultural and development. The traditional one emphasises the pride of being able to feed one's family, taking into account the source of food, the reasons why food is produced and the importance of food to the spirit of a person. The modern one emphasises mass production without much concern for the effects of consuming such foods on the person who eats it, because there is no assumed relationship between the producer and the consumer, apart from the money exchanged. The question that persists from the two views is how the two co-exist or do not co-exist.

Among the major ways of attaining the goals of the PMA, was the establishment of the National Agricultural Advisory Services (NAADS) to manage the extension services of the government.

1.5.3.1 The NAADS

The rationale for establishing the NAADS was the perceived failure of the traditional extension approach to bring about greater productivity and expansion of agriculture. The NAAD's major aim was to develop a demand-driven, client-oriented and farmer-led agricultural service delivery system particularly targeting the poor and the women (MAAIF, 2000, p. viii). The

NAADS was launched in 2001, with two years of piloting the programme. Under the NAADS, agricultural extension services were privatised and termed what government called “demand-driven”. Farmers were supposed to purchase extension services from private providers, leaving government to supervise such providers. The main agricultural practices promoted by the NAADS were modern agricultural practices, like the use of improved seeds and animals (MAAIF, 2000). How this would benefit the number of farmers who were not able to access extension services previously, still remains a subject of contention. How poor smallholder farmers who struggle to meet their basic needs were supposed to finance their own extension services, remains a puzzle (see details of PMA evaluation in OPM, 2008). Nevertheless, the NAADS was implemented and faced many challenges, which led to the suspension of its activities in 2008-2009 because of the mismanagement of the scheme. The president constituted a task force to investigate how the NAADS officials mismanaged funds given to facilitate its operations.

1.5.4 The proposed Indigenous Knowledge (IK) Policy

The major aim of the IK Policy, according to Muwanga (2001), is to integrate the IK into the PEAP. As part of the process of developing the IK Policy and under the heated debates on sustainable development, in 1999 government signed the Kampala Declaration on Indigenous Knowledge in which all members pledged to:

Encourage policy makers, planners, scientists, economists, national and international development institutions as well as the entire civil society and resource managers to understand and internalize the increasing value of indigenous knowledge and to promote its application as a key instrument for the empowerment of local communities.

(The World Bank, 2000, p. 1)

Following this declaration, the government geared its efforts to implement and commit in action to the declaration. An IK policy was proposed and has been underway since 2001. However, closer examination shows that the IK policy concentrates on placing emphasis on the parts of indigenous knowledge that can be modernised or transformed to fit in with the wider vision of transformation to modernity. For example, while emphasising the government’s strategy for indigenous knowledge, one of the outcomes government wanted to see was potential areas in which indigenous knowledge would be applied in health, agriculture and natural resource management by doing research on those areas (Muwanga, 2001, p. 18). This would mean that the aspects that are considered useful would be those which can be applied on a broader scale for national development, a practice that always disappoints scientists because it disregards

such knowledge as part of a wider culture (Sillitoe, 2000). How such a view of taking parts of indigenous knowledge which make sense to science translates into practice is the major subject of this study.

It is within this national policy context that I conducted my study to explore how local knowledge and modern knowledge were working together, or not working together, in the continuous struggle to secure livelihoods.

1.6 Why this study

1.6.1 Do farmers lack knowledge or are they strategic?

Thompson et al (2007) have argued that on-farm decisions made by farmers in the developing world are dictated by the uncertainty of their circumstances. They further explain that global economic and environmental changes, like climate change, changes in land use and uncertain economic conditions, all contribute to the decisions farmers make about their reality. Babikwa (2003) also affirms that farmers operate in a highly dynamic environment and therefore need to make decisions in response to the dynamism. The Uganda government's assumption is that farmers lack modern technology and farming methods and that if they have such knowledge, they have not been able to apply it because they are ignorant about its merits. What have not been explored are the reasons for non-adoption of modern methods in relation to the dynamics in the farmers' context. This study therefore aimed at studying the assumptions about non-adaptation of modern farming methods. By studying these, it would help me to see how the two forms of knowledge work out in the reality of farmers' lives, specifically those assumptions made about farmers' knowledge and adaptation in the face of risk.

For instance, has anyone established that farmers actually do not adopt modern methods because they do not know them? And if farmers lack modern knowledge, we have seen from the profile that access to extension services is 5-10%. How are they managing without any form of extension? What about farmers' indigenous knowledge? Does indigenous knowledge contribute anything to farmers farming methods and skills?

1.6.2 Recognition of indigenous knowledge systems (IKS)

Further contradictions arise in this case when the government makes policies that are rooted in westernisation on the one hand and others rooted in the recognition of the autonomy of the people, through their own indigenous systems on the other hand. In 2000 for example, the

same year that the PMA was launched, the government signed the Kampala Declaration on Indigenous Knowledge for Sustainable Development funded by The World Bank. In this declaration, government pledged to support and engage with local knowledge in the spirit of sustainable development. In the preamble, the government stated that:

As we approach the third millennium there is a growing global recognition of the role indigenous knowledge will play in consonance with modern scientific and technological intervention in social and economic development and cultural and political transformation. There is further recognition of the important role of local communities in contributing their indigenous knowledge systems to enhance the sustainability of development programmes. (The World Bank, 2000, p.1)

In the declaration above, there is an opportunity for IKS to be institutionalised and recognised as important to a community. Yet in some of government's policy documents (MAAIF, 2000; Muduuli, 2000; MoFPED, 2009), the general view about such knowledge is that it is backward and therefore needs to be modernised.

And yet as some scholars from the livelihoods studies field have argued, poor people draw on their assets to survive (Chambers, 1983; Scoones, 1998). The assets that are under their control and access are what will be the major determinants of how they survive disasters. Further analysis by different scholars, as we shall see in chapter two shows that poor people have knowledge that has been called different names: indigenous knowledge, traditional knowledge, local knowledge and indigenous technical knowledge, among other things. Such knowledge has been characterised as one of the assets they draw on to secure their livelihoods (see Sillitoe, 1998, 2000, 2005; Freire, 1973, 1972; UNCST, 2005; Muduuli, 2001; Shiva, 1993, 2001; Chambers, 1993; Correa, 2001; Dods, 2004; Ellen et al, 2000).

Against the background of modernisation, this denigration of indigenous knowledge yet promotion of it at the same time, stands out as a contradiction. Farmers' knowledge is seen as valuable and as a local resource and yet at the same time becomes the target for modernisation of agriculture – the object of transformation. Is the reality on the ground representative of the view of government? Indigenous knowledge might have been in a community for a long time, but does that make it obsolete? What then do farmers do with their local knowledge when they are being transformed into modern farmers?

1.6.3 The principles underlying the government's modernisation project

The framework that governs the provision of agricultural extension education is based on modernisation of agriculture, which is built on such principles as industrialisation, growth of a middle class, and modern technologies and knowledge (Haines, 2000). Agriculture, as Devereux et al (2005) have already argued, is seen as making a contribution to the industrialisation process, not that industrialisation is dependent on the agricultural sector. The Ugandan population is more than 80% rural and mostly employed in the agricultural sector, not the industrial sector. This places the basis for government's plan for modernisation in direct contradiction with the intentions of subsistence farming and the dynamics of people's livelihoods. The intention of this study was to find out how this contradiction manifests itself at the implementation level in securing livelihoods. The purpose of this study was to enable the farmer to speak so that his/her experiences with agricultural knowledge could help us understand what happens to the two forms of knowledge at the farm level. How do farmers resolve the contradiction between looking at local knowledge as a resource and looking at modern knowledge as "the essential resource for a better life"? How do they determine what form of knowledge to use for producing crops that will be commodities or food?

1.6.4 What about livelihoods security?

What has continued to characterise the agricultural sector and what also forms part of the pre-occupations of this study, is government's perception that market-led reforms in the agricultural sector will lead to an increase in food production and ensure livelihoods security. The government's focus is no longer concerned about production of enough food to feed its citizens, but rather on contributing to the balance of payments from foreign markets, and the strategies that have been designed like the Strategic Export Initiative (SEI) and the Medium-term Competitiveness Strategy (MTCS) attest to this (UNDP, 2007). The two strategies are to focus on export-led growth to ensure competitiveness in the world market.

In contrast, scholars (Chambers, 1983, 1995, 2004; Carney, 1998, 1999, 2004; Scoones et al, 2005; and Kanji & Barrientos, 2002) have argued that poor people are not only concerned about income security. Rather, they focus on different activities to achieve the ultimate objective of livelihoods security. Sometimes they prioritise food security or livelihoods security above other outcomes, like income security. In focusing on livelihoods security, poor people think about several things at once, i.e. food, income, health, autonomy in decision-making, and

relationships and others. How does this thinking of the poor people survive in an environment that prioritises income security?

1.6.5 Key questions to be answered

- a) What knowledge do farmers use in farming?
- b) What importance is attached to local and modern knowledges in the farming context?
- c) What is the purpose, content and methodology of the training offered by VEDCO?
- d) What risks are farmers exposed to in farming for food or cash?
- e) How does local knowledge as a resource help farmers to deal with risks associated with farming?
- f) How do farmers avoid farming-related risks in their lives?
- g) What are the farmers' experiences with the contradictions that are inherent in having two epistemological frameworks in the same field?
- h) How do farmers resolve the contradictions between the two frameworks?
- i) What are the implications of these findings for agricultural extension training?

These questions would eventually contribute to answering the central question of this study: How do farmers operating in two contradictory frameworks, of modernisation and indigeneity, negotiate their way out of risky situations with a purpose of securing their livelihoods?

1.7 A brief outline of the methodology

This was a qualitative ethnographic study and relied on case study methodology to achieve its purpose. The study drew on methods from Participatory Rural Appraisal for gathering data (Chambers, 1997). This enabled me to study the farmers' experiences in the context and setting in which they occurred, as emphasised by Chilisa and Preece (2005). The major method used for this study was participant observation (see chapter 3). Other methods included local knowledge analysis, informal interviews, group discussions, and seasonality calendars. These methods and the field work process will be described in chapter three extensively.

The study was hosted by an NGO in Luwero district in the central region in Uganda, called Volunteer Efforts for Development Concerns (VEDCO). VEDCO provides agricultural extension training to farmers in three regions in Uganda – the central, eastern and West Nile – and promotes sustainable agriculture in these communities. The study was carried out in the central region, where the organisation originated in 1988 and which houses the offices that manage the central region (a full profile will be given at the beginning of chapter four).

1.8 Conclusion

The tensions that arise out of the previous discussion point to different ideas that underlie the intentions of this study. When we look at the reforms that have been implemented in the agricultural sector in Uganda since colonialism and under the NRM, we realise that it has been a deliberate government effort to 'transform' the economy from subsistence to a monetary economy without much success. The agricultural research that has been supported is to encourage more of the plantation type of agriculture, and the knowledge and technology being emphasised are also meant to support commercial agricultural production. But alongside the modern commercial sector, is a vibrant peasant-led economy that is holding the agricultural sector together and giving people food. These are farmers with little or no modern technology, who produce their own food and sell the surplus, but receive limited or no government support. Their major concern is food first, but they have other concerns that arise alongside the need to feed, for example, money to access health facilities and education services. With changing environmental conditions and poor land policies they find themselves vulnerable to livelihoods insecurity (Babikwa, 2003; DANIDA, 2005).

Knowledge and adoption of modern technology have been promoted as the engines of agricultural growth, but only 30% of the farming population is adopting them and the numbers of the smallholder farmers adopting them might be smaller than recorded here. This would imply that the farmers have knowledge and technology on which they rely to produce. How is it possible then, that people can be at the centre of food growing and not afford to feed themselves and their families? The Ugandan peasant sector has managed to push the modern farming technologies aside for many centuries. What has been their alternative? How have their alternatives worked for them amidst increased risks because of environmental/natural shocks? Does the presence of modern technology hinder farmers' use of their local knowledge? Such will be the questions that this study through its findings will seek answers to.

1.9 The outline of the thesis

In chapter one, I examined the political, social, economic and policy context within which agricultural extension education is conducted, pointing out the tensions that arise therein. I first introduced the study topic and the reasons for it, and then went on to give the context, within which I describe the historical background that has informed work in the agricultural sector in Uganda and address the key questions of the study.

Chapter two will present the literature reviewed for this study to locate it in existing literature. I introduce the main concepts that this study has engaged, such as livelihoods, sustainable development and sustainability, food security, risk and local knowledge. The aim of this is to focus my study and from this literature, construct a conceptual framework to guide the field work and analysis of my findings.

In chapter three, I explain my research methodology and describe the field work process, partly by recounting my own experiences, and partly by justifying the methods that have their roots in anthropology for a study approached from the community education perspective.

In chapter four, the farmers are given the opportunity to speak about their local knowledge, their risks and their histories. I begin with a description of the local context, so that the reader is able to see the world through their eyes, in their circumstances. I also introduce the organisation which hosted the study, VEDCO, so that the interplay between the farmers' realities and the activities of the organisation is given prominence.

In chapter five, I endeavour to tackle the questions this study engages with by bringing together what the literature says and what the findings say. I use my conceptual framework to look at and characterise local knowledge, based on the works of Paulo Freire. I discuss the farmers' risks in relation to the extension educational knowledge to which they are exposed. I look at the process of knowledge creation and application, and I examine their livelihoods based on the sustainable livelihoods' framework. This is all aimed at answering the questions I raise. I find answers to the question that examines the existence and use of local knowledge in agriculture and the contradictions that arise therein when confronted with modern knowledge.

In chapter Six, I conclude by looking at the linkages between knowledge, risk management and livelihoods security in the lives of farmers. Based on these conclusions, I make recommendations for practice and research.

CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 Introduction

In chapter one, I described the context within which agricultural extension and new knowledge is passed on to farmers and the reasons for this. In chapter two, I critically engage with the theories underpinning my study and explain the theoretical framework that informed this research. Particularly, I will first develop an understanding of knowledge in general and scale it down to look at the place of knowledge in adult education, justifying why I engage with it at the conceptual level. I will also examine the place of knowledge in development as given in theory, paying particular attention to indigenous knowledge and knowledge in modernity. The second part will engage with the livelihoods' understanding of deprivation, unpacking it in such a way as to show its holistic view of livelihoods, a central idea with which this study was concerned. I will examine the components of the livelihoods' framework with the aim of identifying those relevant to this study, which are livelihoods security, vulnerability and risk. In the last section, I will show the arguments that link these with local knowledge in such a way that they give a framework of analysis for this study.

2.2 What is knowledge?

There is no one agreed definition of knowledge because it is not a tangible entity. However, some scholars have suggested definitions, which are mainly reflective of their guiding purpose of such knowledge. Plato suggested that for knowledge to be defined as knowledge, it is supposed to be justified, true belief (Guthrie, 1986). For Plato's definition, positivists added that "valid knowledge can only be established by reference to that which is manifested in experience" (Carr & Kemmis, 1986 p.61). The main arguments advanced by the above school of thought, dominated by positivists was that the final product of the process (knowledge) would be free of any human influence, making it a neutral concept, hence universal (Carr & Kemmis, 1986). This is what the proponents of scientific knowledge claimed as the distinguishing feature of scientific knowledge from other forms of knowledge. While the claim of universality allowed scientific knowledge to be seen and accepted as the only true knowledge, some scholars emerged to challenge the said claim (ibid). Michelson (1996) suggested that there are two broad categories of defining knowledge, which are western epistemology and Afro-centric epistemology (1996). Michelson associated science, reason and rationality with western

epistemology. Afro-centric epistemology on the other hand, was associated with subjective experience as a basis for understanding knowledge. However, the question of what characterises knowledge and what is knowledge remained a central question in epistemology. Having been accepted as the only knowledge over the years, scientific knowledge was still the benchmark against which all worthwhile knowledge was measured. This usually resulted into other forms of knowledge, such as indigenous knowledge being regarded as unworthy knowledge (Odora-Hoppers, 2005). I will therefore examine the meaning of scientific knowledge, to understand how the earlier definitions of knowledge were shaped by scientific knowledge.

2.3 What is scientific knowledge?

Modern knowledge is part of the modernist conviction that there is only one unifying truth and knowledge form which involves the mastery of knowledge and where such mastery leads to progress (Usher et al, 1997). There are institutions which are supposed to champion the production of knowledge and any knowledge produced from outside these institutions is not recognised as worthwhile. As part of this role therefore, the 'dedicated institutions' become the channels through which modern educational discourses and practices are developed, maintained and legitimised (ibid). Roberts and Hite (2000) supporting this argument, add that the media is also part of this scheme. The modern school of thought, drawing from neo-liberalism focuses on the product of the education or training system and is most concerned about the 'right knowledge' being imparted (Walters, 1996). Education and training in this discourse, provides a site for disseminating and internalising the ideals of "critical reason, individual autonomy and benevolent progress" (Usher et al, 1997, p. 11). All structures that participate in learning and education are supposed to be 'ridding society of tradition' and encouraging it to embrace modernity (see Fox & Van Rooyen, 2004, p. 47). Knowledge then is considered worthwhile only in as far as it contributes to the process of modernisation.

In science, for knowledge to be considered worthy of the name, it must be based on scientifically-derived evidence, and its acceptance or rejection is based on data observed or experimented, then classified and reasoned out, uniformities identified, and theories or laws formed. This ensures that theories are based on facts (Gottlieb, 1997). In modernity, the power of expertise and modern knowledge underpin development policies, rendering the other forms of knowledge invalid (Brock et al, 2001). Rouse (1987) also asserts that science is by far the

most successful means of constructing representations of the world, deriving its success from the fact that everything is tested and tried until it is seen to work, albeit in a seemingly similar environment.

Furthermore, in science everything is reduced to words, making other forms that are communicated through practices and experiences automatically invalid (Sillitoe, 1998). While scientific knowledge can be made, experimented, and tested in a situation other than the real situation where it is going to be used, indigenous knowledge, especially in farming, is tested and tried as part of the farming practices. Indigenous knowledge is not detached, made and brought back to that situation.

The implication for other knowledges has been one of inequality and discounting. Indigenous or local knowledge has ended up being what Foucault has referred to as “subjugated knowledges”, that is those that have been “disqualified as inadequate and insufficiently elaborated”, but which are in a process of “re-emergence” (in Gordon, 1987, p. 82). This has led to a sharp divide, at least in theory, positioning indigenous knowledge on one side of the scale, albeit lower, and science on the other more acceptable and universal side. As we have seen in the arguments above, it is clear that the sharp divide is a result of the power of the scientific against the indigenous.

Importantly, Verhelst (1987) argues that especially in modern agricultural education programmes for peasants, farmers’ ideas are discounted because they are poor, and to a western mind, poverty and ignorance are synonymous, where they are both an end and a means. According to Verhelst, farmers who have more knowledge about those situations have no say in the matter at all. Gorz has asserted that modernisation fragments world systems as people, culture, economics and politics move in different directions, thereby creating a crisis of modernity (2000). This leads to a situation where modernisation takes precedence over poverty reduction as a major policy outcome (Brock et al, 2001). Beck (1992), emphasises that the separation of people from their creativity and needs, is the primary risk people face within modernity. The reason for this is that they begin to depend on institutions and actors they cannot access and when they do, they are both obscure and alien. Under such conditions, indigenous knowledge is looked at as backward and useless because it is not able to live up to demands of modernity (Hilhorst, 2004).

Barr (1999) has argued that the engagement with knowledge in all spheres of life is because knowledge and reason are human practices, rooted in people's judgements, and therefore subject to contestation and debates. This makes knowledge part of life whether in the modern era or in the indigenous one. The act of knowing, whether formally learnt or just acquired, is the foundation of all actions. The underlying factor is that all knowledge is supposed to serve a purpose in development, and the power that each knowledge commands depends on the understanding of development at that time in that space. I will therefore address myself to knowledge and purpose in adult education and especially focus on agricultural extension education in Uganda.

According to Rouse (1987) science has assumed the role of giving status to all other forms of knowledge. The assumed role attests to the view that science is both 'a field of knowledge', and a 'field of power' (Rouse, 1987, p.15). The duality of scientific knowledge is what makes it what it is. As a field of knowledge, this means that truth is generated through the rigour of science to be named as scientific knowledge (Guthrie, 1986). As a field of power, this meant that there is an accepted process through which all knowledge must go prior to being commissioned as knowledge. Firstly, scientific knowledge has to be detached of all human influences to ensure that it is objective. Secondly, there is a general belief that scientific knowledge is transferable across borders in discipline and geographical terms (Fernando, 2003). Fernando's argument means that scientific knowledge is not bound by social, political and other contexts. Thirdly, there is general acceptance that science is still the language of authority and dominance in any development debate (Briggs & Sharp, 2004).

Scholars such as Briggs and Sharp (2004), Kalland (2000) and Sillitoe (1998), have raised arguments to question the validity of the universality argument for scientific knowledge. Warren et al (1995), Sillitoe, (1998, 2000) and Kalland (2000) have argued that while science may have some areas where it has comparative advantage over indigenous knowledge, it does not make it universally superior. They have argued that western knowledge is just one form of knowledge in a field of many, and that it was given a "licence" by colonial and neo-colonial power dynamics to thrive as the only knowledge, like many other aspects in the colonial era. Briggs and Sharp (2004) further emphasise that the supremacy that science enjoys over other forms of knowledge has laid a foundation for which particular knowledge is worthy of knowing and which one is not. This means that some forms of knowledge will be held in higher esteem than

others and due to the effects of colonialism, indigenous knowledge has earned its place at the bottom of the pyramid.

Furthermore, the belief that western science is the only knowledge has resulted in science assuming superiority over other forms of knowledge (Briggs & Sharp, 2004). The result of this unequal relationship was inherently ethnocentric and elitist, predisposing all other forms of people's knowledge to ridicule and unworthiness (Ellen & Harris, 2000). Unworthiness and ridicule were in turn coupled with a methodological reductionism and knowledge evaluation process that automatically rendered other forms of knowledge, other than scientific, unworthy of being known. The reason for such a relationship, according to Mauro and Hardison (2000), is that many scientists view indigenous knowledge as superstition, irrational and tribal. In most cases, when indigenous knowledge is viewed negatively, its usefulness is not recognised because it does not make scientific sense (ibid). Shiva actually argues that the categorisations of 'scientific' and 'unscientific' knowledge has little to do with the knowledge that is being referred to, and more to do with power (Shiva (1993). There are concerns that the debates surrounding scientific and unscientific knowledge are debates about power, for instance, who has power to decide on what is scientific and what is not scientific? It was in the spirit of these arguments for 'unscientific' knowledge that some scholars felt that not all knowledge has to be scientific knowledge. Many scholars who have studied indigenous knowledge had described it in opposition to scientific knowledge, showing the authority of science still as a benchmark for defining knowledge. I will examine the meaning of indigenous knowledge next, to develop an understanding of how the conceptualisation of knowledge is representative of particular orientation to development and education.

2.4 What is 'unscientific' /indigenous knowledge?

In defining indigenous knowledge, this literature review encountered numerous definitions that were as context-specific as the knowledge they attempted to define. I will now engage with some of the commonest definitions of the 'unscientific' knowledge.

2.4.1.1 Indigenous knowledge

Odora-Hoppers (2002:8) has explained that the term "indigenous" refers to the root, something natural or "innate to". Dei (2000) refers to indigenous in terms of territorial space and explains that one is termed indigenous as a result of residing in a particular place for a long time, placing the naturalness and innateness in a space in time. Kalland (2000:321) further expands this

argument and explains that the term “indigenous” is many times used interchangeably with terms like “aboriginal” and “nature” - and pertains to the first known inhabitants or beliefs and practices of an area.

The explanations given above are clearly linked to aspects of time, originality and a geographical space, putting indigenous knowledge in direct contrast with knowledge in modernity. However, the explanations operate in a safe zone by not looking into issues of who decides that one has stayed long enough to qualify to have indigenous knowledge. And how does one know how far back one has to look to know whether a particular type of knowledge is indigenous or not. In addition, knowledge in these circumstances is understood to be a static package that is there after a long period of time, which takes away its quality of fluidity.

Hart and Vorster (2006) further develop the meaning of indigenous knowledge and explain that it is knowledge held by local people residing in a given area or community, which they have developed over time and continue to develop. The explanation given by Hart and Vorster (2006), recognises that indigenous knowledge is integral to community life, values and spirituality, a characteristic attributed to Africentric epistemology (Walter, 2009). By recognising the connection between indigenous knowledge and the community, the spirituality of the individual is upheld, because it has a bearing on the spirituality of the whole community (Merriam & Kim, 2008).

While the earlier definitions establish indigenous knowledge as a static package of knowledge in a place for a long period of time, the latter introduces the idea of dynamism and hybridity¹ and implies that there is a producer and holder of the indigenous knowledge. To further enhance this view of indigenous knowledge, Correa (2001) argues that indigenous knowledge, which he refers to as traditional knowledge, mostly comprises knowledge developed over a long period and which is still being developed. It is usually not contemporary, having been developed and used over time, but changes with improvements or adaptation to changing conditions. This is premised on the idea that indigenous knowledge is not static, but like other forms of knowledge, it is dynamic and adaptable to different situations. However, like the previous assertion by Dei (2001), the argument is silent about the role of the knower and

¹ The term hybridity is taken from the work of Fernando (2003, p. 58) and refers to a situation where knowledge systems of distant and different localities are in contact with each other, communicate and learn from each other.

therefore one is not able to understand under what conditions the knowledge is adaptable and who determines that. This is one aspect that the present study seeks to explore.

The assumption made previously is that knowledge can exist without the knower, and in the later arguments by Hart and Vorster (2006) and Correa (2001), people are brought into the definition of knowledge, implying four aspects of indigenous knowledge. Firstly, indigenous knowledge is constructed or originates within a space. Secondly, indigenous knowledge is constructed and relevant at a particular time. Thirdly, indigenous knowledge is constructed by a group of people or a person. And lastly, indigenous knowledge is constructed as people engage in activities. These are the four aspects that underpin any definition of indigenous knowledge. In the scientific definition of knowledge, knowledge is detached from the holders and exists anyway, irrespective of the absence of the knower who appears as detached from the knowledge.

2.4.1.2 Local knowledge

Scholars like Warren et al (1995) define indigenous knowledge as local knowledge that is unique to a given people or culture. Odora-Hoppers (2002, p. 8) expands this outlook to that of the indigenous knowledge system and argues that it refers to “a combination of knowledge systems that include technology, social, economic and philosophical/educational, legal and governance systems”. While the definitions by Hart and Vorster, and Warren bring the knower into the understanding of indigenous knowledge, Odora-Hopper’s definition expands the concept to a much more holistic view of indigenous knowledge as a system.

In debates on knowledge, the role of the knower, or the person(s) within whom this knowledge resides, is not neutral. Mundy and Compton (1995) explain that knowledge is a process of individual cognition and therefore resides within people who determine how they present the knowledge. This means that if someone has a particular knowledge, they are bound to weigh how best to present that knowledge depending on their own beliefs, perceptions and convictions. This renders the neutrality and innocence assumed with knowledge unrealistic and impractical.

2.4.1.3 Indigenous technical knowledge

In systems farming research, indigenous knowledge has been referred to as indigenous technical knowledge, implying what is considered important for agriculture, but also giving a clear picture of what the place of indigenous knowledge is understood to be. This marks a

departure from knowledge as simply knowing to an understanding of it as know-how. In this area, indigenous technical knowledge means “a dynamic response to changing contexts through farmers’ practices as situated agents” (Bebbington, 1993, p. 275). Bebbington’s definition reminds us about the importance of defining within a particular context and practice. In Bebbington’s definition, is incorporated the purpose of knowledge to farmers, i.e. the fact that their circumstances are ever changing and knowledge changes along with them as a response to everyday challenges. It is constructed through the activities in which the farmers are engaged which ensures usage and relevance, and the farmers - the users of the knowledge – are not just farmers, but are agents, situated within the context where that knowledge is constructed, learnt and shared with others.

Bebbington adds that the term indigenous technical knowledge gives a false impression that there is a coherent form of knowledge called indigenous technical knowledge (1993). Looking at the changing circumstances of farmers, one should not presuppose a static pack of knowledge called indigenous technical knowledge, but rather understand it as a fluid conception of knowledge referring to what is working now and what is yet to be produced. Hart & Vorster (2006) disengage us from this argument and elaborate that in the 1990s there emerged general acceptance that indigenous technical knowledge was part of indigenous knowledge and not similar to it, so the term indigenous knowledge was adopted as any knowledge of this nature.

2.4.1.4 Traditional environmental knowledge

Ethno-ecologists and environmentalists have also attempted to define indigenous knowledge within their epistemology to emphasise the inter-connectedness between people and nature (Pierotti & Wildcat, 2000). This connection is well elaborated by Cock (2007) who explains that traditional environmental knowledge is supposed to enable those who possess it to live in harmony with nature. The understanding of indigenous environmental knowledge and indigenous technical knowledge is somewhat similar because the two are both located within specific contexts of know-how. In the environmental perspective, it is a way of knowing how to interact with nature, while in the agricultural context, it is meant to enable the practice of agriculture. However, what is not clear is that if people are not interacting with nature, through agriculture or otherwise, can that still be considered indigenous knowledge.

Ellen and Harris (2000) explain that whatever definition is given to indigenous knowledge governs how we approach the subject and influences the decisions we make about and with it. This means that the definitions we give to indigenous knowledge will define the space, the time, the people involved and the activities in which we engage indigenous knowledge. Therefore, the definitions show our own positions on indigenous knowledge and importance ascribed thereto. What I deduce from the literature is that besides the definition, there are two issues that arise: the characteristics of indigenous knowledge and the question of who has power to name knowledge.

In light of the definitions and terms that are given by different scholars, I find it important to select one term that I will use in this study and justify its use. This will not mean that it is the best or only term, but it will direct my study to what is most important. I will therefore refer to all knowledge referred to as indigenous knowledge henceforth as local knowledge. This choice takes cognisance of the arguments against the concept of “local knowledge” which includes Fernando’s argument that the term “local” cannot be detached from the space within which it is being used in relation to its exterior (2003, p. 58). Bankoff also argues when viewed in the local/global dimension, the term local becomes simplistic and predisposes local knowledge to being understood in those terms. From the definitions given so far, I find that the term local knowledge befits my purpose, context and framework for the following reasons.

Firstly, after interrogating the meaning of indigenous knowledge and that of the adjective ‘indigenous’ which qualifies the knowledge, I found it difficult to determine how original a particular type of knowledge is and how it came into being. With local knowledge, I engage with aspects of space and time, and exteriority; what is exterior to a household is interior to a village. I find that the term ‘local’ is much more accommodating of all knowledge that is being used in a particular place, whether learnt from the outside or within, but which is not modern agricultural knowledge learnt through the extension services.

Secondly, I chose ‘local’ over ‘traditional’ knowledge because the connotation of the term ‘traditional’ is much more political than ‘local’. Hountodji (1997, p. 16) has argued that whereas we all believe that the term traditional is ‘innocent’, it is only innocent in appearance. When used in contrast with ‘modern’, it significantly carves out the divisions between ‘old’ and ‘new’, therefore implying uneventful, static and frail. It also carries along a closer connection with history – not the good side which someone would like to learn from, but the old that must be

thrown away to allow in the new. These are aspects that I do not want the knowledge to which I refer, to be associated with.

Thirdly, and connected to the aspects of time and place is the characteristic of local knowledge being grounded in a set of activities. Local knowledge is constructed from and through activities of people. As much as local knowledge as a concept will guide this study, it would be wrong to develop an understanding of local knowledge without engaging with some of the criticisms against it. In the next sub-section, I will engage with some of the views of scholars who have critiqued indigenous knowledge.

2.4.1.1 A critique of indigenous knowledge

Firstly, indigenous knowledge has been considered as not scientific enough because it is argued that it is contextually bound and highly linked with survival (Dei, 2000). It is accumulated by one living in a particular area and by doing, watching and living a particular way of life (Ellen et al, 2000). People do not seek to control their environment, but they see themselves as part of their environment. There is a growing concern and a consistent uneasy feeling that indigenous knowledge is too place-specific to offer any theoretical use beyond its original location (Briggs, 2005).

However, Fernando (2003) argues that indigenous knowledge cannot be divorced from its cultural and historical environment. The reason given by Fernando is that the environment is what gives indigenous knowledge meaning, value and vitality as it cannot be seen as exterior to people's lives or to a particular culture. Moreover, if any attempts are made to transfer it, this will affect its validity and usefulness; and hence lose the aspects that make it really useful knowledge. Fernando (2003) and Sillitoe (1998) both explain that indigenous knowledge is contextualised within a particular culture. Bala and Gheverghese (2007) also concur with the argument that indigenous knowledge is constructed and applied within a particular culture. As part of an indigenous system, it draws its content from its surrounding environment.

This is informed by the view that knowledge is continuously and actively created (Israel, 1990). Such knowledge is drawn from the development paradigms that have emerged only recently, which tend to emphasise people-centred development against developmentalism. These views incorporate people's voices in their work and assume that the people know what they want (Escobar, 1997; Chambers, 1983; Freire, 1972). However, Agrawal (1995) has challenged this

view saying that all knowledge is bound in a particular context, a view that has been supported by Briggs and Sharp (2004) who have stressed that even science is also contextually bound, in institutions of the West that produce and legitimise it.

Sillitoe (1998) cautions that the cultural embeddedness aspect of indigenous knowledge should be approached cautiously, lest we sound like romantics. Professionally, we are obliged to represent indigenous knowledge to our fellow development workers, policy planners, intellectuals and academics in a way that allows them to see its role in people's lives. Romantic representations of it will be a disservice to it. We must present it carefully to those with whom we work without distorting its language when we use the languages of the West. But if we present it as a problematic, culturally-specific type of knowledge, we might help to increase the doubt that already clouds it instead of reducing it (Gamser & Appleton, 2000).

Secondly, Agrawal (1995) argued that local indigenous knowledge is so dynamic and changes all the time hence difficult to document, making it inaccessible to other people to learn from it. The difficulty to document it renders indigenous knowledge informal compared to scientific knowledge, because with science what is not narrated or written down is informal and therefore not worthy knowledge (Odora-Hoppers, 2002).

However, indigenous knowledge takes pride in being highly dynamic and fluid in its construction and application, because it involves continuous negotiation between people and their environment (Sillitoe, 1998; 2000; Bebbington, 1993); Hart and Vorster, 2006; Ellen, 2000). This quality makes it relevant to everyday life and allows it to be highly applicable to changing circumstances, especially in poor people's lives. However, it is this same quality that makes it very challenging to document and grasp by those who wish to do so, because what was, might have changed by the time one documents. This has been raised as one of the criticisms of indigenous knowledge, in that it cannot be documented, managed and stored because it is ever changing (Agrawal, 1995).

In fact, elsewhere, (in Keim & Busingye, 2009), the oral nature of indigenous knowledge is a way of protecting indigenous knowledge, particularly the more specialised indigenous knowledge. Its oral nature is what prevents it from being accessed by outsiders, because of the existing weak structures that have not been able to protect it against the evils of patenting knowledge, life and plant forms. This is happening in a context where under western intellectual

property laws, indigenous knowledge is considered as simply information in the 'public domain,' free for anyone to use (Correa, 2001).

Thirdly, indigenous knowledge is considered worthless because it contributed minimally to modernity and economic growth. Such a criticism stems from the assumption that all forms of traditionalism must be modernised under modernity (Briggs, 2005). In so doing, knowledge and expertise in agriculture are the first targets. In fact indigenous knowledge, it is seen more in terms of what value can be added to it to make a better way of knowing or better still, a modernised way. According to Briggs and Sharp (2004), indigenous knowledge is only allowed in to offer a few scientifically certified solutions that are place-specific, but is not offered much ground to speak for itself. This leads to what Sillitoe (1998, p. 233) has referred to as the "mining of indigenous knowledge". It is only offered a platform as long as it has a technical solution to offer science, and beyond that it is seen as useless.

What can be deduced from the critiques so far given is that they are all critiquing indigenous knowledge against the benchmarks of what is legitimised by modernity. Although there is still a technological superiority that is considerably hindering development work, during the last two decades we have witnessed changes in development thinking most of which have paid some recognition to indigenous knowledge. Briggs (2005) has attributed this change to the doubts that have risen in watching and putting science to work in the last 50 years in Africa and elsewhere, where not much had improved. If anything, impoverishment and poverty have only increased. According to Briggs:

Skepticism, even disillusionment with what Scoones (1996:50) has called the 'seductiveness of the simple solution' provided by science has grown. Consequently, there is an increasing recognition of the ways in which the complexities of reality, the multiple perspectives of people involved and the contextualization of knowledge in time and space must play a role. Indeed it can be argued that the local knowledge has an advantage over western science in the context of poor communities, in that information is tested with the context of survival and hence it is not just true or false in some dispassionate way, but is either more or less effective in providing the means of survival, a conclusion more meaningful in the context of everyday existence. (2005, p. 105)

The relationship between indigenous knowledge and everyday activities will therefore allow for grounds of dialogue, and seek to deal with some of the tensions that arise out of the two forms of knowledge playing out in the same field. This may not erode the binary divide that exists between the two forms of knowledge (Fernando, 2003), but at least each will be accorded a certain degree of respect by the other, which is a very healthy starting point for an intellectual dialogue.

2.4.2 Knowledge and power

The most glaring tension in debates on what counts as knowledge and what does not, has been centred around the influence power has on the process of knowledge creation, a factor underlying Habermas' theory (Habermas, 1972). The power-knowledge debate is rooted in the debates on feminism and epistemology because feminists were the first to explore the debates about femininity and the injustice that confronted knowledge constructed and held by women (Ryan, 2001). Ryan (2001) argued that society was centred on patriarchy and dominance. Men's dominance was very prominent and along with it, were characteristics of objectivity and rationality, the defining characteristics of scientific knowledge. Women's knowledge within this domination became the unscientific knowledge subject to domination from men. Also arguing from the feminist perspective, Michelson (1996) explained that women's knowledge was and is still discounted. Michelson sees subjugation as not only applicable to women's knowledge but also as applicable to subjugation of African systems during colonialism and knowledge held by people of a lower class in racially segregated societies. At the heart of these arguments is the idea that the nature of social systems has allowed members of privileged groups to control what has counted as knowledge. This argument is important to this study particularly because in interrogating indigenous knowledge systems, I am bound to stumble on the power debates in the prevailing social relations.

Some writers of indigenous knowledge have placed the origin of the tensions between African and Western knowledge systems in the legacy of colonialism. For example, Odora-Hoppers (2002) argues that the classifications between different forms of knowledge were governed by the legacy of colonialism. Briggs (2005) supports this argument that during colonial times Africans were constructed as unscientific exploiters of their resources, like women were in gender segregated societies (citing Mackenzie, 1995), a position through which they were portrayed as a people in need of modernisation. Odora-Hoppers (2002) further explained that

along with other forms of injustice and subjugation, colonialism provided a framework for organised and institutionalised oppression, hence hegemony, and emphasised that:

This subjugation extended in a spectrum of people's 'way of seeing' or 'their way of being', their way of negotiating life processes in different environments, their survival techniques, to technologies for ecologically sensitive exploitation of natural resources. All these knowledges were en masse rendered irrelevant to their use as millions of people became transmogrified by the combined advent of modern science and colonialism, into an inverted mirror of Western identity-a mirror that belittled them and sent them to the back of the queue. (2002, p. 10, citing Esteva, 1992)

Whatever the source of the tensions in the knowledge systems, what writers tend to agree on is the presence of two distinct categorisations that guide the status of knowledge in any particular society, that is, the scientific knowledge and other knowledge. The categorisations are both influenced by knowledge and power, which in turn helps us to understand the reasons for the way agricultural extension services as a form of adult education are provided in Uganda.

Within epistemological debates, the notion that knowledge and power are intertwined has emerged, with some scholars arguing that one reinforces the other, and others arguing that one names the other. Pottier (2003) emphasises that power and control are central to the articulation of any knowledge form. Foucault (in Gordon, 1980) has also asserted that as people, we are subjected to the production of truth through power and we only exercise power through the production of truth, which usually is conforming to what our society demands of us. Knowledge is therefore given power by social structures that apportion the nature of social relations and determine who has more power than others. This usually means that the process of construction, the product and those who are involved in this process are assigned by the systems that are pre-existent (Scandrett 1999).

Okere et al (2005) have emphasised that in their glitter and efficiency, modern science and technology have presented one type of knowledge – the scientific as valid, a move which many times obscures the local roots of the same scientific knowledge. Take modern medicine as an example, most of which is drawn from plants, herbs and other plant raw materials. Okere (2005, p. 22) has further argued that the terms “science” and “western” have become ambiguous and emotionally charged, invoking strong partisan sentiments, and sometimes resentment, as a result of their association with the wider subjugation of colonialism. According

to Okere, (2005), science has lost its innocence because it has acquired a history in which the West sought to impose itself on other peoples, hence threatening the very basis of modern knowledge with extinction. Actually, Escobar (1997) postulates that the sole purpose of this devaluation would then pave a clear way for asserting western knowledge as the only valid knowledge at all times for all people. With this claim, emerges an arrogant confidence in the unquestionable validity of western knowledge.

This has naturally created a sharp divide between scientific knowledge and other forms of knowledge, indigenous knowledge included (Briggs, 2005) – a divide that Fernando (2003) has argued is institutionally produced rather than naturally existent. This has provided the dichotomies and the context, in the postcolonial era, through which all forms of knowledge are understood, as to whether they are scientific and therefore worth knowing or not. Wider than that, modern knowledge has characterised the provision of educational programmes in such a way that all other forms of knowledge that are not modern are ignored. And what is not usually studied is the way the people who are going to apply the scientific knowledge respond to it versus the claims that are made about it. This study therefore intends to respond to this gap in the literature.

Sillitoe (2000) argues that even the names that are given to different forms of knowledge, such as local knowledge and indigenous knowledge are politically charged. They are assigned with the intention of showing which definition represents as more powerful than the other (I will examine naming of indigenous knowledge later). Therefore for Sillitoe (2000), the debate about what knowledge is and who determines that, are all political questions that anyone who wished to engage with them, should interrogate.

However, this has not stopped science from assuming a superior status and causing every type or form of knowledge to adopt its scientific language as a way of seeking legitimisation by the scientists. Spivak (2000) has referred to this as epistemic violence, arguing against how other people's ways of knowing and interpreting the world are trivialised and invalidated by western science. He suggests that for indigenous knowledge to be acknowledged, it has to move slowly towards the central terrain from the periphery where science has assumed a place for it. However, Sillitoe (1998, p.229) argues that this might be one way of practically "killing" indigenous knowledge, and that it should not be invalidated merely because it cannot be discerned by western scientific methods as the two forms of knowledge "speak" different

languages. This is the same position that Habermas (1972) takes, in that because science is not able to discern other forms of knowledge, this should not render indigenous knowledge unworthy as the different forms of knowledge are supposed to serve different interests.

Calestano (2000) further argues that in African systems of thought, knowledge is cumulative and is constructed through one's interaction with the social world. For Dods (2004) this is what renders indigenous knowledge what it is and circumscribes and constitutes it with a culture of a particular group of people. This has enabled indigenous knowledge systems to be tolerant of other systems of knowledge because it sees itself as co-existing with other forms, which it equally values. It then becomes difficult for western science to be viewed as one form of knowledge in the field of many others without jeopardising its own hegemony. But how it co-exists with western knowledge that by its nature overlooks it, is a question that has not been tackled and this study hopes to explore.

2.4.2.1.1 Knowledge in modernisation

Modernisation as a theory is based on the experiences that shaped the culture and societies in Western Europe and involves such economic occurrences, as "industrialization, urbanization and increased use of technology" (Willis, 2005). In this theory, the world was divided into two, the modern and the traditional, each with its own unique but parallel characteristics. According to Esteva (1993), this was orchestrated the day President Truman of the United States gave a speech in which he divided the world into two categories. On that day:

Underdevelopment began... two billion people became underdeveloped. In a real sense, from that time on, they ceased being what they were, in all their diversity, and transmogrified into an inverted mirror of others' reality; a mirror that belittles them and sends them off to the end of the queue, a mirror that defines their identity, which is really that of a heterogeneous and diverse majority, simply in terms of a homogenizing and narrow minority. (Esteva, 1993, p. 7)

The countries that were characterised as 'underdeveloped' were supposed to imitate what the already 'developed' countries had done and develop in the process (Burkey, 1993). To influence policy in African states like Uganda, this ideology was championed by the western institutions, the World Bank and the IMF. This is characteristic of western thinking that development is synonymous with modernisation, meaning that it is only through modernisation that a particular country or society can transform and progress, the absence of which will leave

it in a traditional, backward state (Coetzee, 2001). Modernisation was understood to be an inevitable process of economic growth and development (Hesse & Wissink, 2004). The justification for modernisation in this thinking was to catch up with the developed world.

2.4.2.1.2 Globalisation-locality debate

McMicheal (2000, pp. 278-9) has argued that globalisation is “a way of ordering the world”. He attributes this to the World Development Report of 1980, in which the meaning of development was re-defined to mean “participation in the global world” (ibid). Consequently, the global economy started re-shaping the conditions under which states would formulate economic policy. McMicheal (2000, p.279) attributes the emergence of globalisation to the 1817 theory proposed by David Ricardo, “all nations were better off if they specialize their production in areas on comparative advantage”. This brought the question of trade relying mainly on imports to the fore of economic planning and has guided much decision-making today in many countries (Noberg-Hodge, 2001). What both authors agree on is that if countries wanted to develop, they had to put trade at the forefront. This trade was not going to be the trade that allowed countries to meet domestic needs because, according to Noberg-Hodge (2001), this had always existed. Instead, its focus was supposed to be aimed at satisfying the needs of the outsiders.

The best available strategy that fitted this thinking was the modernisation strategy, so in this case, it provided the best means to ‘catch up’ quickly (Schirato & Webb, 2003). Incorporating all the principles of globalisation, modernisation became part of the doxa; it seemed true and necessary and was simply accepted as the way things had to be (Schirato & Webb, 2003). By doing this, the modernisation approach that provided just one way of understanding development became the process through which all countries would join the global market and the result of this process, the modernised society, would be the measure of development. Where countries, which by then were already indebted, could not manage to service their debts and pay back their loans, the international financial institutions provided them with guidelines to enable them to pay back (Roberts & Hite, 2000). Roberts and Hite (2000) go on to argue that this gave the debtors a say in how economies could be managed; the measures benefited the global economy more than they did individual economies and they made sure that their consumers in their own countries had what they needed at the expense of the poor economies.

Along with these policies, many decisions were taken that have continued to have an impact on service delivery in most poor countries in the South, including agricultural extension education.

According to Roberts and Hite (2000), the effect of the modernisation thinking was adoption of new forms of material life, changes in the education system, values and attitudes. According to them, poverty was attributed to the fact that poor nations lacked capital to invest, modern technology and social organisation values. The system that was put in place then was focused on filling in the gaps so that development and progress could be realised. However, along the way it became evident that the promises of modernisation were empty, and that society was not progressing in the manner predicted by modernisation theorists (Youngman, 2000).

Knowledge in people-centered development

Scholars who advocate for people's indigenous knowledge tend to be part of the development theorists group who support people-centred development (See Chambers, 1992; Sillitoe, 2000; Freire, 1973; Nyerere, 1976; Bebbington, 1993; Barr, 1999; Michelson, 1996; and others). For Nyerere (1976, p. 1), "...development is for Man, by Man and of Man". For him therefore, all forms of education are related to the life that man is going to live and what he/she wants to become. Freire advocates for education for development, where people should be active beings prepared to participate in making their own history (1972, 1973). For this reason, these scholars argue that indigenous knowledge is highly dynamic and adaptable to different situations. It is this dynamic process that gives it its content and its intention (Correa, 2001). This is what makes it relevant to survival and everyday life because it changes and adapts according to what is happening in the environment around it (Chambers, 1992). While examining the possibility of indigenising modern knowledge in Tanzania, Semali (1999, p. 307) concluded that indigenous knowledge derives its origin and meaning from the collective "epistemological understanding and rationalization" as opposed to deriving it from the individual. Noberg-Hodge (2001). The arguments advanced by people-centered development theorists above, present concrete ideas about the connection between knowledge and development. In order to understand the concept of knowledge better, and how it informs development, I will explore the concept of knowledge proposed by Paulo Freire in the following section.

2.4.3 Knowledge and knowing according to Paulo Freire

2.4.4 The origin of Freire's pedagogy

Paulo Freire was born in Recife in 1921, at a time when Brazil was being submerged into an economic crisis (Freire, 1972). Freire was born in a middle class family, which later was affected by the economic crisis and he experienced extreme hunger and poverty. His early experiences made him dedicate his pedagogy to fight against injustices, like hunger and poverty. His aim was to develop a pedagogical approach rooted in the realities of Latin America at the time. His ideas rose to prominence in 1959 in his doctoral dissertation at the University of Recife (Freire, 1972). After applying his methodology in literacy campaigns in North East Brazil, the government felt threatened because it was felt that the methodology would threaten the statusquo. After a military coup in 1964, Freire was jailed and released seventy days later and then exiled. It was during his exile that Freire wrote his classic book *Pedagogy of the Oppressed* (1970). In 1979, due to political changes, Freire was invited back to Brazil where he taught at a University in Sao Paulo. His pedagogy has influenced and continued to influence the theory and practice of adult education world-wide. This case study for instance identified with Paulo Freire's pedagogy because the circumstances that made him dedicate his life to fight injustices are what this study was exploring. Central among these are his views on what knowing, knowledge and the process of knowing mean, which I will engage with in the following section.

Freire's understanding of knowledge is people and action-centred. He defined knowing thus; 'knowing is not mere accumulation of facts or information, what he called 'banking education'. Rather, knowing is constructing oneself as a subject in the world, one who is able both to rewrite what one reads and to act in the world to radically alter it' (Palmer et al, 2001, p. 130). Freire adds that the act of knowing is not an act that is done or effected by passive receivers of content, but rather by active beings who seek to confront the challenges in the world in which they live (Freire, 1973) People should relate to the world in a critical way and it is through that process that knowledge is transformed and utilised to fit their situation. Freire (1972, 1973) argues that there are processes that must be in place for people to develop the capacity to know, for people to construct knowledge. The processes include dialogue, reflection and action (praxis), challenging banking education and conscientisation. I will engage with these concepts below so as to understand Freire's pedagogical process, but also because they are the theoretical lenses through which I will examine all pedagogical processes in this study.

2.4.4.1 Dialogue

Freire defines dialogue as “the encounter between men, mediated by the world, in order to name the world” (Freire, 1972, p.61). Inherent in dialogue is people’s respect for one another, believing that the other is able to name his or her world (John, 2009). Freire explains that the dialogue to which he refers is not mere conversations between people, and it is not ‘verbalism’, but is a process that involves critical reflection, which is defined as:

The thinking which discerns an invisible solidarity between the world and people admitting of no dichotomy between them – thinking which perceives reality as process and transformation, rather than as a static entity – thinking which does not separate itself from action, but constantly immerses itself in temporality without fear of risks involved. (Freire, 1985 p. 64)

In his view, dialogue is the process by which knowledge that is useful is constructed through people’s engagement with their reality in a process of critical reflection. By doing that, their ability to name their world is transformed. Knowledge produced here is useful to their reality or rather to their world. In order for knowledge to be created and recreated, people have to engage in a process of reflection and action, which he termed as praxis.

2.4.4.2 Praxis

Freire (1972) explained that knowledge should serve a purpose to those who construct it, and within that purpose is the idea of praxis. According to Freire (1972), reflection and action are intertwined. He explained that if action does not involve reflection it is “pure activism”, and reflection without action is “pure verbalism”. In using one term to explain the other, he brought forth the continuous challenge to put theory and practice together as one entity, instead of seeing them as separate. Freire went further to emphasise that the process of reflection does not stop, but continues with emerging challenges and actions. People are seen as able as opposed to being seen as “containers, into receptacles to be filled by the teacher” (Freire, 1972, p.45). He argued that people are capable of analysing and naming their world, and that they just have to be guided the right way. In his view, all people are capable of naming and acting in their world, in their reality. People are able to critically engage with their situation and challenges, irrespective of their status in society. This levels the ground for respect, dialogue, trust and faith in people, and hence mutual dialogue. However, Freire asserts that in education systems, the banking system of education does not allow for praxis to happen (1972). Instead it domesticates the student and hinders her/him from praxis. The understanding of praxis

developed by Freire provides a useful tool for conceptualising and understanding the purpose of agricultural extension education provided by VEDCO.

2.4.4.3 Banking education

Freire levelled criticism against dominant education and knowledge construction processes that he referred to as “banking education”. According to Freire, the banking concept in education is that “in which the scope of action allowed to the students extends only as far as receiving, filling and storing deposits” (Freire, 1972, p. 45). In this form of education, learners are regarded as “adaptable, manageable beings” (ibid, p. 47). Students’ learning is assessed by testing them on how much of the deposits they are able to reproduce without changing or adapting the same deposits to their reality. Under the banking education, the teacher-student relationship is based on the assumption that the teacher is the only knowledgeable person in the relationship. According to Freire, in this banking concept, woman/man and his/her world are separate entities, with one acting over the other. By separating man and his world, man assumes power over nature or his world, and uses it as a means to an end (Freire, 1972, p. 49). The relationship with other humans and nature at large is lost and that unequal relationship lays the ground for oppression and exploitation. Understood that way, education loses its primary purpose of enabling people to engage in the process of transformation and instead leaves them dehumanised (Palmer et al, 2001). Knowledge produced through the banking education system is therefore not representative of the reality of the people who need to use it. The understanding of banking education becomes an important concept to use to explore the nature of VEDCO’s extension education programme and its ability to enable farmers to question or conform. For the farmers to question, they would have to go through a process of conscientisation.

2.4.4.4 Conscientisation

Freire explains that all education encounters have a purpose to fulfil, but what is most important is that such encounters are supposed to enable people to engage in a process of conscientisation. According to John (2009, p.45), “conscientisation is the process of becoming more critically aware of one’s world and one’s position in the world”. It enables learners to reach a level where they are critically aware of what is happening around them and then seek to transform it. This can only happen if there is genuine dialogue, praxis and a problem-posing education, as opposed to banking education. Conscientisation is the end that is attained by other processes, however both as a concept and a process, the concept can also be reflected

upon. Implicit in the conscientisation process is a critical awareness that enables people to critically engage with oppression and oppressive structures around them in order to transform them. In such a process, “knowledge emerges only through the invention and re-invention, through the restlessness, impatient, continuing, hopeful inquiry men pursue in the world, with the world and with each other” (Freire, 1972, p.45). Conscientisation therefore becomes an end and means to the process of knowledge creation. It is informed and it informs actions people take every day, mediated by their realities.

2.4.4.5 A critique of Freire’s pedagogy

Like any other theory, Freire’s theory of knowledge has faced criticism from different perspectives. One of the critiques that have been brought forward questioned the relevance of Freire’s theory to contexts that are not revolutionary in nature. Facundo (1984) suggested that it was difficult to engage with concepts of the oppressor and oppressed in contexts where oppression is determined by other factors such as gender, race, religion, and so on. In addition to this, Freire’s suggestions that to achieve solidarity, educators have to commit class suicide “have posed ideological and methodological conundrums for some contemporary educators” (see John, 2009, p.52; Margonis, 2003; Peckham, 2003). However, Freire has demonstrated his concern for changing contexts, in terms of development paradigms and power structures, especially in his argument that:

It is always important to foreground the particularity of oppression against a background of multiple possibilities ... We must not lose sight of the need to recognise multiple constructions of power and authority in a society driven by inequalities of power and exclusionary divisions of privilege and how these are implicated in the constitution of subjectivity differentiated by race, class, and sexual preference. (cited in Peckham, 2003, p. 228).

Freire has also been critiqued for promoting a simplistic concept of the teacher. Elbow (1986) and Weiler (1994) suggest that Freire pretended to be on the students’ side, locating the teacher irreversibly on the other side of the desk. This critique was picked up by Peckham (2003) who believes that Freire is not to blame for how his followers put his theory into practice as “teacher heroes”. Kane (2003) has supported this argument, stating that Freire’s theory has in some instances been misinterpreted by practitioners.

One other critique of Freire’s theory concerns his use of sexist terms such as ‘man’ and ‘mankind’ in his early works (see Friere, 1972). On this criticism, Freire tried to address the

problem of language and much of this was rectified in his later work (see Horton & Freire, 1990). In fact, one feminist writer, Hooks (1993), who was strong on this nature of critique explained that as much as she criticised, Freire's work was able to "touch the core of her being" (see Bell Hooks, 1993, p. 149).

Nevertheless, and with such criticisms in mind, I found that Freire's understanding of construction of knowledge spoke to my study in the sense that all people, of all classes, farmers inclusive, were valued as knowledge creators. It is this outlook that enabled me to approach the field with respect, ready to dialogue and enable farmers to speak out and be listened to. Freire's association of knowledge with action spoke to farming practice, which he also has discussed extensively in "Education for critical consciousness" (Freire, 1973) and *Education: The practice of freedom* (1973). Freire's theory is very clear regarding what counts as knowledge even if it has led to tensions relating to power and knowledge, some of which I will engage with because they are pertinent to this study.

2.4.5 What counts as knowledge in agricultural extension education?

Firstly, there is a school of thought which argues that people get involved in construction and creation of knowledge to enable them have technical control over nature (Carr & Kemmis, 1985, Habermas, 1972). Such knowledge is what characterises scientific knowledge taken from processes that have little or nothing to do with human influence. This view is associated with positivism, rationalism and scienticism. The meaning and purpose of knowledge is defined by what sciences can do through a rigorous process of analysing scientific procedures (Habermas, 1972). The major aim is the process in as much as it is the result; much attention is paid to the process of knowledge construction to maintain objectivity as opposed to the relevancy of the knowledge being produced to everyday life (ibid, p. 69).

In adult education programmes and processes the above view manifests in agricultural extension education which maintains that its major purpose is solving technical problems (Babikwa, 2003). It has therefore led to the development of most of the knowledge that is necessary for modern industrialisation and production (Carr & Kemmis, 1985). It approaches knowledge as a neutral concept and pays little attention to power structures, which results in reproducing inequality and social injustice. In this process of knowledge construction, the learner is an 'empty vessel' that needs to be filled with already made knowledge (Freire, 1972). The role of the teacher in this case is to deposit information they deem important in the minds of the ignorant learners, thereby giving them a sense of superiority over those who do not hold

the same knowledge (ibid). The views therein become very fertile ground for major tensions between modern knowledge systems and indigenous knowledge systems, because only science is considered as being able to generate worthwhile knowledge.

In agricultural extension the thinking has manifested itself in the top-down extension approaches that have influenced this field since the colonial period. Approaches like the Train & Visit (T&V) system of extension and 'transfer of technology', reviewed earlier in chapter one, are part of the systems where knowledge is produced in laboratories and taken for dissemination to farms. Agricultural extension in this case is an "essential mechanism for delivering information and advice as an 'input' into modern farming" (Swanson et al, 1997, p. 8).

This technicist view (Babikwa, 2003) can easily be identified with the modernisation approach to development in which all problems are attributed to the absence of scientific knowledge. There is an unquestionable belief in the ability of science to solve all the technical problems, and the nature of education that is given is also meant to achieve this aim. This interest forms part of the agenda of modernising agriculture in Uganda.

Secondly, according to Carr & Kemmis (1985), there is another school that argues that knowledge is supposed to serve a particular function, related to the practical needs of life rather than work. The experiences of the learners provide the basis for learning. The individual is at the centre of life and their lives form the basis for learning.

However, Michelson (1996) finds this understanding of experience very contradictory to the fact that the person is seen as having experiences and acknowledging the construction of knowledge as being a result of experience (ibid). Yet in order for knowledge to stand as truth it has to first be purged of all its origins, abstracted from the place of its making and de-historicised. This then allows it to transcend its site of production and it becomes universalised knowledge, transcending spatial and time limitations to give meaning to all. But when all this is mediated by a particular structure of power, it is highly likely that what is regarded as worthwhile knowledge will have power undertones. This has been at the heart of the discussions on learning and life, experiential learning in adult education, and has formed the basis for emerging debates in adult education, an example being the science and indigenous knowledge debates.

In adult education and community development, this thinking has influenced some of the programmes implemented. This is what has influenced the development of such methodologies as Regenerated Freirean Literacy for Empowering Community Techniques (REFLECT) and Participatory Rural Appraisal (PRA) methodologies in adult education and community development (Babikwa, 2003). It has also influenced the idea of experiential learning and literacy programmes that use aspects drawn from people's experiences to develop content for learning processes. The aim of this has mainly been to keep life and learning together so as to make learning relevant to life.

However this school of thought does not address the issue of power relations and structures that underpin the learning process and the effects this has on what is learnt and what is not learnt. This was the kind of criticism that Nyerere (1974) levelled against his previous definition of education (Nyerere, 1967), from preparing young people for life in their community to educating for freedom. He argued that education was supposed to liberate both the body and mind of man, going beyond the purpose of living and adapting to society as it changed, to challenging those structures that make society unjust (Nyerere, 1974).

The last school of thought argues that knowledge construction happens within a context of social, cultural and historical relations which determines what is accepted as knowledge or not (Palmer et al, 2001). The major aim of any educational activity is supposed to be to create opportunities that enable the learners to challenge, question and seek to deal with the forces that undermine freedoms of individuals. It is underpinned by empowerment, social justice and freedom which enable learners to confront the forces that have shaped their circumstances. A major proponent of this theory, and who forms a subsidiary part of my conceptual framework for understanding knowledge, is Paulo Freire. The ideas that run through his theories on adult education and extension education in particular, make Freire relevant for analysis.

Firstly, the contexts within which Freire (1972) develops and applies his philosophy are similar in many respects, but in particular they focus on disadvantaged people, similar to the farmers with whom I worked in Uganda. Freire emerged from societies characterised by poverty and deprivation, circumstances similar to those I have outlined about the Ugandan context in chapter one.

Secondly, I believe that people are active beings who are part of a social system and are therefore co-constructors of knowledge in a process of learning (Freire, 1972). This calls for mutual respect for all people, a fundamental principle for the humanisation process to begin (Freire, 1972). This also relates to the understanding of indigenous knowledge systems in which all people were respected as knowledge creators in their own domains. The question of who could construct knowledge is not a preserve of a few, but the important aspect was specialising in what each did best.

In adult education, this view of knowledge has resulted in the critical pedagogy in which knowing does not necessarily mean collecting facts, or what Freire refers to as “banking education”. Rather it is finding one’s place in the world in such a way that one becomes a creator of history and radically seeks to change what exists (Palmer et al, 2001). What this means is that humans are part of a wider social system that is characterised by different relations, and it is these relations that determine what will count as knowledge and what will not. The basic step therefore to arriving at emancipation is to challenge those structural inequalities that underlie whole systems (ibid). The emancipatory interest has also guided the development of community-based education programmes which emphasise the fact that education cannot be separated from the culture and community within which it is practised (Cunningham, 1996).

On critical pedagogy in agricultural extension, Freire (1973) emphasises that knowledge of agriculture cannot be ‘extended’ from those who know (extension workers) to those who supposedly do not know, because it is constructed as a result of various relationships. When one talks of educating people to do away with traditional methods as I have seen stated in policy papers in Uganda, one demonstrates a lack of faith in people (ibid). According to Freire, the failure of adapting to modern methods of farming does not lie with the farmers, but it tends to lie with the failure to recognise the wider cultural context within which these people/peasants/farmers operate (ibid). This view is affirmed by Nyerere (1974) who asserts that education is part and parcel of society within which it is being practised. Does such education exist in a vacuum or does it have to interact with other forms of education?

Having examined these divergent views and the different ways in which knowledge is constructed and utilised, it is clear that much of the literature either deals with one or the other of the tensions that arise, especially the science-indigenous divide. There has not been much

literature that examines what happens to the knowledge in practice. My research therefore hopes to contribute to knowledge in this area, i.e. how knowledges interact in the field of contradictions to meet the interests of the farmers.

2.5 From modernisation to alternatives: developing a way out

2.5.1 Modernisation and its effects: contradictions and crises

As I have explained, modernisation failed to meet the development demands of people. Development practitioners started developing a way out to deal with the deficiencies of modernisation. I will engage with the effects of modernisation in the next section, explain the effects of modernisation and examine how the livelihoods approach rooted in sustainability emerged as a way out of the modernity crises.

The benchmark for modernity has always been its ability to change societies from one extreme of traditionalism to modernism. Coetzee (2001) for example, argues that modernisation is always positioned in contrast with traditionalism in order for it to make sense because it is understood as a continuum from one point [traditional] to another [modern]. While traditional systems are viewed as having a limited capacity to solve their own social problems and to take control of the physical environment around them, modernisation is viewed as having the scientific means to control different forms of life, production and access to resources. The ability to control phenomena was understood as the fundamental difference between modern and traditional societies, i.e. the control that modernity assumed over the natural and social environment (Roberts & Hite, 2000). This view is what fed into all the differences that were given by modernists and further created binaries between the modern and the traditional. The traditional provided a justification for the existence of the former. But there were those characteristics that distinguished modernisation from other development approaches, which form the discussion in the following section.

2.5.1.1 Existence of a dual economy

Burkey (1993) asserts that there was a clear trend that the communities that were thought to be 'underdeveloped' had a dualistic economy, characterised by a relatively advanced sector, alongside a backward more traditional sector. The argument that was advanced to explain the duality was that the traditional 'backward' sector was to blame, because this sector had failed to meet the goals of modernisation. The proposed solution was to reduce population growth, improve health, introduce new seed varieties and make sufficient investment, and then growth

would occur. However, the reforms that were undertaken ended up affecting the provision of basic services to poor people, plunging them further into poverty (Thompson et al, 2007). Therefore, instead of reducing the disparities in the two sections of the traditional and modern economies, modernisation made them more apparent. In fact, Willis (2005) has argued that because existing development theories had not led to improvement in people's lives, development theorists had to stop and revisit the meaning of development.

2.5.1.2 The persistence of the neoliberal market-orientation

Although the economic arguments for more free trade are based on the assumption that international liberalisation of markets will enhance growth and economic welfare of countries (Kanji & Barrientos, 2002), by the 1970s there was a wide realisation that modernisation was not the way to go and so development theorists were at it again, thinking about development in a different way. However, what did not actually depart from the development models promoted then and which is still apparent now, is the influence of the market. With the diminishing role of government, the private sector was allowed to flourish and developed some of the strategies that have worked in direct opposition to some governments' market-orientation. But at the same time, this has created a paradox because the private sector was allowed to flourish and many grass root approaches to development were encouraged, with a focus on indigenous knowledge, gender and development and sustainable development (Willis, 2006). With critiques becoming widespread, development theorists had to think of alternatives, one of which was sustainable development.

2.5.1.3 Linear progression as the pathway to development

Coetzee (2006) argues that in modernisation, development was understood as a linear process that progressed from one end to the other. According to Roberts and Hite (2000), this assumed that society would progress from one type [the traditional] to another [the modern] along a single route. It therefore did not provide any explanation for those societies that had modern economies alongside traditional ones. More so, different societies took different routes to achieve their development objectives; they did not have to catch up with the modern ones. These observations demonstrated that while the theory had managed to explain what had happened in the modern societies that existed at the time, it could not be applied to the so-called 'traditional' societies.

2.5.1.4 External stimulus for development

Furthermore, according to Coetzee (2006), in modernity, there was much external stimulus for development, i.e. technology made from outside, experts from outside, and inputs from outside the community in which they were going to be put to use. However, these caused polarity and classifications of different communities and individuals within the same space and time. Roberts and Hite (2000, p. 10) argue that the prescription was “borrow, import, imitate and rationalize” for the “underdeveloped” countries”. The underdeveloped countries were supposed to aspire to be credit-worthy, and for this, they were to implement Structural Adjustment Programmes. They were supposed to aim at producing for export and attracting imports, as part of globalisation. They were also supposed to imitate the developed countries, their systems, education, technology, industrialisation, and urbanisation. Lastly, the underdeveloped countries were supposed to embrace science, thereby encouraging rationality and objectivity. So those from outside a particular community were always looked at as better than those who they found. This partly explains why Shiva (1993) refers to this process as “ethical bankruptcy”.

2.5.1.5 Commoditisation of food and food security

As part of the market-oriented drive, food production is central to the functions of the market under modernisation. When modern methods, knowledge and technologies are promoted, the result is supposed to be increased food production to feed the growing population. However, in some cases, food becomes so scarce that people go hungry in places where plenty of food is on the market. In the same economic terms, Godrej (1995) explains that scarcity is a good thing because it gives the goods or commodity more economic value. Esteva (1993, pp. 17-19) explains that in fact the “law of scarcity” in economics was formulated as part of the project that would position the market as an inevitable truism. The value of food, like any other commodity, is realised in its monetary value.

According to Godrej (1995), people in these communities, whose power over seed and food production is sucked out, are given new hope that they can open up their markets and sell or buy freely whatever food or service they want. However, Godrej believes that when the market is pushed as a panacea for solving food and seed problems to feed populations, it makes matters worse because it is like “prescribing pneumonia for a cold” (1995, p. 9). Considering that the competition to which underdeveloped countries have been opened up has been building itself up for a long time, and also because their governments have abrogated their responsibility and left the market place to dictate, the results are always predictable. According

to Willis (2006), this is what led to the realisation in the 1980s that the modernisation approach would not lead to any development. There was thus renewed thinking about what development meant and how people could be brought back to the centre of the development process. However, the modernisation approach had profound effects on the food systems that have followed through and still manifests today because it gave a new face to the food system. According to Godrej (1995, p.9), the problems of food scarcity that are being experienced in the world today are not because there is no food, but because there is wealth. Godrej (1995) coined this the “paradox of plenty”.

2.5.1.5.1 ‘The paradox of plenty’

Malthusian scientists convinced the world that if they increased food supply, there would be no hungry people. However, the status is that famine and hunger exist in places where there is plenty of food. Seabrook (2003, p. 33) argues that: “There is enough food in the world to provide every human being with more than 3,500 calories a day”.

Bush (2007, p. 145) has attributed the paradox of plenty to the effects of “late capitalism” and argues that hunger is part and parcel of “late capitalism”. Having been given an exchange value, food must be bought and sold, thus ensuring that famine will not disappear because capitalism values food as a commodity and not for feeding oneself and one’s family. Seabrook (2003) has also emphasised that it has been the lack of purchasing power of those who are at risk of food shortages that has left 800 million people hungry across the world. This has been one of the major contradictions of late capitalism (Bush, 2007). According to Roberts (2008) for instance, even if the market is positioned as paramount, people still have a preference and take pride in their ability to produce their own food and have it in their own way. This is contrary to the position of the Ugandan government because its focus is on ensuring food through the market.

2.5.1.5.2 Effects of modernisation on the food system

In a deeper analysis, Roberts (2008) has pointed out the effects of modernisation on the food system, which to him, have a global significance. He referred to the effects as “revolutions” (2008, pp. 35-38). Roberts explains that there has been a revolution in how food was produced, from the hand-held hoe to capital-intensive equipment like tractors and combine-harvesters, which in a way destroys the close relationship that people have with their fields. The second revolution has been in who produces food, where it is no longer someone known to the

consumer, but someone in the global labour market chain. This lack of relationship between the two is dictated by how much one can pay for a product, rather than maintaining a relationship by producing good food. The third revolution has been where food is produced. Roberts (2008) argues that, food can be produced in one area and eaten in another area thousands of miles apart because of the super highways that are available to transport these foods. The producer makes sure that they get the right dose of water to keep them 'fresh' for that long journey. The fourth revolution has been in how food is processed. It is no longer coming in bags but in cans, ready to heat and eat. The fifth revolution has been in where consumers buy food; it is no longer in the store at the corner or at a local market, but in a one-stop super market, where the only relationship that they have is via the money they pay. The sixth revolution has been in how food is cooked at home. While it once took hours to prepare meals and one started with nothing and created something, now 'smart equipment' is used to make meals. There is no passion in the creation of what is going to nourish the body; it is more about how fast one cooks with as little effort as possible. The seventh revolution is where food was eaten, in which case it is no longer in the kitchen, but either in the television room, with no attention paid to enjoying the food and communicating; it is just about getting some food into the stomach. The last revolution is how food is eaten or hovered/gulped down and there is no longer an intimate relationship with food, but more of eating in the car while speaking on the phone.

For Roberts (2008), this lack of relationship is what had led the modernists to fail to strike a balance between the quality of food and the quantity of food. By departing from the use-value of food, the nutrition value had been compromised for its commercial value. Food production within modernisation is no longer associated with its contribution to the maintaining of life.

The lack of relationship with a healthy life is what is emphasised by Shiva (1993) in that the output of the farming and cropping system is given economic evaluation and attention, but the system that produces that output is considered irrelevant. In this system, all effort is put into sustaining supply to the market, not the reproduction of the ecosystem that gives output, thereby putting the cropping system and the output of the system at risk. Science and technology are accepted as what scientists and technologists produce, and development is accepted as what science and technology produce.

While modernisation theory is written about in the past tense, as something that happened in the 1960s-70s, Uganda is still pursuing it as a strategy to achieve development. It is the target of policy and has been since the 1960s. It is the focus and its manifestations that have

changed. This is what gives a purpose to the current study: the contradictions that arise when policy supports economic benefits of liberalisation for poverty reduction, which operates in the same field with subsistence farmers whose major concern is livelihoods security (Kanji & Barrientos, 2002). In examining the micro level effects of modernisation, the connotations that come along with modernisation have to be questioned. The position that people have to assume in order to aim for development has to be interrogated and understood.

Modernisation in agriculture still approaches development or progress with a linear view, progressing from the traditional to the “transformed-new” (Scrijvers, 1993, p. 19). It focuses on the market as the only place where food can be obtained and whatever strategy is developed is supposed to enable people with the means to purchase food (Shiva, 1993). In order to produce enough for the market, local methods of agriculture are displaced and a system that relies on new varieties of crops, hybrids and industrial inputs are given priority (Shiva, 1993). Brock et al (2001) also emphasise that science and technology are part and parcel of modernisation in the development world. Thompson et al (2007) have argued that the application of scientific knowledge to agriculture is linked to a view of modernisation, which is influenced by the Malthusists. Malthusists tend to hold the belief that if the population increases, food production is supposed to be increased because otherwise a country will find itself in a situation where it is no longer able to feed its own population, resulting in famine and poverty. The proponents of modernisation promote the usage of hybrid seeds, modern technology and high yielding seed varieties, whose genetic base can be controlled. This has been characterised as a school of thought that focuses on the role of agriculture as an ‘engine’ of economic growth, and is based on ideas that aim at economic and social transformation of the agrarian economy from backward, to modern; subsistence to market-oriented (Thompson et al, 2007). The central argument has been that no country has been able to sustain rapid transition out of poverty without raising productivity in the agricultural sector.

The above argument is in direct contrast to the subsistence, traditional mode of production which embraces a world interpretation that Bennholdt-Thomsen has characterised as one that “seeks immediacy and satisfaction; having enough to eat, warmth and a roof over one’s head and pleasure in being satisfied ... one that values leisure and rejects the eternal nagging cry of ‘have to’...” (2001, p. 224)

The traditional system relies on its local production, exchanges and markets to satisfy its needs and secure its place in the environment in which it resides. The need to transform the

traditional sector is the aim of the project of modernity, to turn all this around into a system controlled by the minority, fitting in with the justification for globalisation. This view about the traditional agricultural sector has had and continues to have dire consequences on agricultural sectors in developing countries. Unfortunately because of the process of globalisation, the consequences are felt by all people, but their ability to recover has depended on the resources they are able to command.

2.5.1.6 Crisis in agricultural extension education

Feder et al (1987) suggest that the central aim of agricultural extension education and training is to “increase knowledge of farmers about crops and cropping practices”. Oakley and Garforth (1985) also explain that agricultural extension provides the means through which new ideas and knowledge are introduced to rural areas for improving lives. Bembridge (1991, p. 18) also asserts that the role of the extension services is to function as a channel for the “new” into rural communities. While the definitions and arguments differ on the role of extension education, they all agree that the process is about knowledge exchange or transmission. It is the methods used to carry out extension education that make a difference.

From the discussion about modernity, we realise that agricultural extension education in this paradigm will aim at meeting the needs of the market, fitting in with the thinking about development at a particular time. Going by the argument given by Bembridge (ibid), the purpose of extension education is not different from the major role of education outside the agricultural extension education. But what is more apparent is the target of the extension service of the rural, creating the rural-urban divide. The idea of the ‘new’ by Bembridge and Garforth (1985) indicates the intention of the modernisation project: that old is traditional and bad while the new knowledge is modern and good. In such a scenario, good things are seen as coming from the urban area to the rural area. The linkage of the two views is then based on a transmission of the good to replace the bad. This is all part of the modernisation system, as part of the “social engineering where progress has a certain meaning and functions both as a pre-given end which education strives for and as the norm by which it is judged” (Usher et al, 1997, p. 11). Agricultural extension, as adult education, plays the function of carrying the message of modernity through improved technology, ‘new ideas’, ‘new crops’, ‘new skills’ and hybrids to farmers. This raises concern about the contribution of adult education to the modernisation project, whether it is in the interests of livelihoods security or not.

For example, Shiva (1993) argues that the purpose of agricultural modernisation schemes is to introduce new and uniform crops into farmers' yields and destroy the local varieties, taking power and control over food production from the majority. The purpose of policy at this stage is not to ensure the reduction of poverty, but more emphasis is placed on modernisation and economic growth as the manifestations of growth. Warren et al (1995) have also argued that even in existing literature, farmers are seen as adopters of technologies from the outside and not as creators of their own knowledge. The key issue that has not been explored is what happens at the farm level in terms of knowledge? If farmers are assumed to be adopters, how do they come to embrace non-adoption.

2.6 Sustainable development: an alternative

In order to deal with the effects of past development approaches that were production-centred, such as modernisation, there were propositions for people-centred approaches with the purpose of recognising that development without people at the centre was likely to be flawed (Korten, 1984). Among the development models that would guide the functions of governments and institutions involved in development work was the sustainable development framework. Sustainable development, a term that is mainly associated with the Brundtland Commission was built on the understanding that what was happening in the world at the time was interconnected and was because of some of the past development models (Tilbury et al, 2002). The sustainable development model became popular, especially in contrast to the popular income-based approaches, like modernisation, for understanding poverty. This comparison was happening at a time when modernisation was being critiqued for providing inadequate measurement and assessment criteria for poverty, especially for poor people in developing countries (Bahigwa et al, 2005). Reid (1995) argued that modernisation had failed to explain the crises that characterised the world at the time. According to Reid (1995), the world population was rising and yet the non-renewable natural resources were being depleted; agricultural production had risen alongside increased desertification, soil erosion, and fish stocks were and are still reducing (ibid). Furthermore, while modernisation had promised progress, more people were becoming poorer and a few were becoming richer, against increased pollution of air and water resources by markets and industries. Faced with such crises in the environment and a development model that was not giving the much-needed answers, the Brundtland Commission proposed *sustainable development* (Reid, 1995).

Part of the tasks of development practitioners was a need to explain why the previous development approaches had not been successful and to find alternatives that were feasible in the light of the challenges mentioned above (Sillitoe, 2000). The approach that made sense then, in light of the depleted natural and non-renewable resources, was sustainable development. It was holistic and had environmental and ethical concerns as central themes.

2.7 Sustainable development in practice

While it started out with an emphasis on living sustainably, authors like Tilbury et al (2002) argue that many development practitioners wanted to embrace the new term, without a clear understanding of what it meant, which led to links to concerns about the environment. Seabrook has also argued that some people embraced the concept and ideals of sustainable development because it was seen as something noble or good to do, but without deliberate actions to put it into practice (Seabrook, 2000; Chambers, 1991). For example, there have been arguments for sustainable economic growth, which is in direct contradiction to the original values of sustainable development. There has been talk around 'sustainable agriculture' which is embraced by two schools of thought, differentiated by values and purpose. One school, focused on just maintaining levels of production over a long period of time, and the other on practicing agriculture such that it will help the environment produce for generations to come (Chambers & Conway, 1991). Fitzgerald et al (1997) have actually argued that making development sustainable was concerned with the quality of growth, in direct opposition of economic growth.

In order to further incorporate sustainable development in development work, there was a need to make it practical to development challenges. The sustainable livelihoods' framework was formulated and has been applied in some instances as an approach and in others as a framework for shaping development work (Chambers & Conway, 1991). The principles of sustainable development – holistic, people-centred, multi-level and participatory – are what made many more institutions embrace and use it. Organisations that championed practical application of the sustainable livelihoods' framework (SLF) included the Department for International Development (DFID), United Nations Development Programme (UNDP) and OXFAM International. Due to its practicability to poor people's livelihoods among other relevant principles, I will use the SLF as my theoretical framework, to wholly understand the lives and practices of poor people. First I will give an overview of how the SLF has been applied.

2.7.1 An overview of the practicality of sustainable livelihoods' framework

In 1987, the World Commission on Environment and Development (WCED), then working on sustainable agriculture and food security, took interest in the concept of 'sustainable livelihood security' in the spirit of sustainable development (Chambers & Conway, 1991). The commission argued that the concept was integrating because it brought together the issues of equity, capabilities and sustainability, which led to livelihoods security, a precondition for stability in human existence. Kanji and Barrientos (2002) have also argued that the concept of livelihoods gained currency in development debates because a livelihood system is examined in its totality; the capabilities, assets, the context within which a livelihood system is situated, all become part of the analysis. In calling for a new analysis of development approaches, the panel of the commission proposed the term 'sustainable livelihoods security' as an integrating concept because it approached poor people's lives holistically and put them at the centre of development (Chambers & Conway, 1999; De Gruncky, 2002). This was important as a departure from the previous strategies where production had been at the centre of development and people were simply a means to development, losing the human face that defines development's purpose (Fitzgerald, 1997).

2.7.1.1 The meaning of sustainable livelihoods

Chambers & Conway (1992) have defined a livelihood as comprising of people and their livelihood capabilities, activities, assets and their gains and outputs. People are at the centre of understanding livelihoods, their means of making a living and the context within which such development takes place.

To qualify livelihoods, and explain the process through which they are made meaningful, Chambers and Conway stated that:

A livelihood comprises the capabilities, assets ... and activities required for a means of living: a livelihood is secure when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels in the short and long term. (1991, p. 6)

From this definition, the authors summarise what the lives of poor people are about, but unlike the earlier approaches that presented people as unresourceful and helpless, the sustainable livelihoods' framework seeks to build on poor people's existing assets. It examined activities

that people carry out to live, the obstacles they faced, and the strategies they devised. The sustainable livelihoods' framework gave a picture of poor people, which built on their ability to negotiate different life situations as decisions-makers to arrive at the strategies that they found applicable.

2.7.1.2 Attributes of the sustainable livelihoods' framework

The sustainable livelihoods' framework incorporated aspects of earlier development theories with aspects of integrated rural development, participatory rural appraisal, rapid rural appraisal and systems' farming research, among others (DFID, 1999). The prominence of the livelihoods' framework was gained from two major observations around the world. Firstly, that poverty was on the increase, irrespective of the efforts that had been applied. Secondly, that the increase in poverty levels seemed to move alongside and even make worse, the crisis in the environment where the natural resource base was becoming depleted (Ashley & Carney, 1999). With the livelihoods approach, institutions like DFID, UNDP, and OXFAM among others, saw the opportunity to holistically tackle issues of poverty, environmental degradation, inclusive development, and the political economy of development. Therefore, while for some institutions, the framework would serve as an analytical tool for understanding why people are poor, for others it would provide the tools for designing interventions to fight poverty (ibid, p.5).

As a thinking tool about poverty, the framework's richness lay in the deliberate attempt to understand the underlying contexts of poverty – the social, cultural, political and institutional contexts in which poor people live. It went beyond the 'less than a dollar a day' or 'number of calories per day' calculations of understanding poverty to characterising poverty in a way that would speak of the poor people's lives (Adato & Meinzen, 2002). As a tool, Adato and Meinzen (2002) have pointed out that the livelihoods' framework recognises that people are actors with assets and capabilities, which they apply to achieve their livelihood goals. It appreciates the power that people have over their own assets and capabilities and sees those as what should be the beginning of conceptualising deprivation in different circumstances.

As a tool for designing interventions to fight poverty, the approach provided the much-needed explanation about the non-market character of most of the activities in which households, individuals and communities were involved in their different environments (Whitehead, 2002). It provided a framework for policy-makers to use when they designed poverty reduction strategies, and gave insight into the different levels of planning that should be involved.

According to Adato and Meinzen (2005), because of the realities poor people in the South are faced with every day, they tend to pursue different activities to make a living. This is best captured by the livelihoods approach because in addition to examining people's livelihood strategies, it also tries to develop an understanding of the process that underlies the context in which poor people live. Whitehead (2002) argues that one aspect that ensures the livelihoods perspective's understanding of the lives of people involved in agriculture is that all the activities that are not valued by the income approaches are given attention. Attention is given to all activities with the purpose of not only maintaining a particular system of well-being in the immediate term, but also over a long period. This has led to a renewed interest in people's livelihood practices, a central idea that my study attempted to explore.

These arguments are the reason why the livelihoods approach is juxtaposed with the income-based conceptualisation of poverty and deprivation, like modernisation. While earlier strategies focused on rural households as though they were a homogeneous entity, the livelihoods approach went deeper to discover the diverse and multiple strategies that were applied to making a living (Hussein, 2002). In this conceptualisation, the idea of sustainability is understood as being something of the present and the future, incorporating the environmental perspective of sustainability, which was the original idea of sustainable development (Hussein, 2002).

2.7.1.3 The composition of the livelihoods' framework

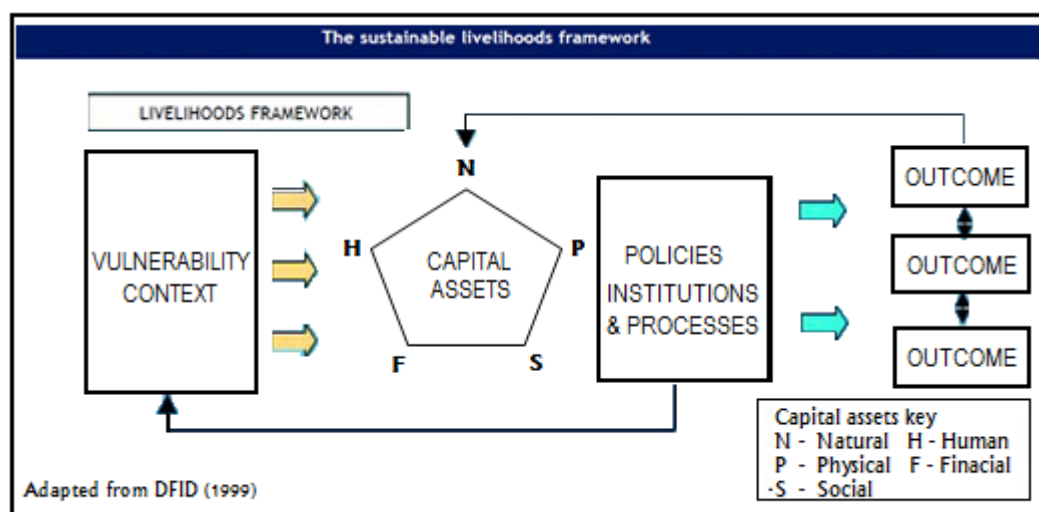


Figure 2.7.1.3-1: Adapted from Jaspars, (2006, p. 2)

As illustrated in figure 1, the livelihoods framework is composed of several components, namely the vulnerability context, capital assets, the policies, institutions and processes, and the outcomes of the interaction between all these. They are all understood to impact and interact with each other for a system to enable life. I will now deeply engage with the different components of the livelihood system shown in the diagram above, to develop an understanding of how they interact and influence each other in a particular livelihood system.

2.7.1.3.1 The vulnerability context

The vulnerability context forms the space within which a livelihood system is determined. According to DFID (1999), this context has within it the trends, the shocks to a livelihood system and the effects of seasonality, especially on poor, rural households whose major livelihood activity is agriculture. For Christopher (2005), the starting point of any livelihood approach is the vulnerability context within which poor people live. According to DFID (1999), shocks to a livelihood system are detrimental to a system as a whole, because they are sudden and cause it to collapse. For example, seasonality is sometimes presented under shocks, but when dealing with farming livelihood systems, especially of people who depend on rain-fed agriculture, seasonality alone might be the shock. This is because seasonality may be continuous, leading to other effects and shocks. Seasonality may thus incorporate multiple shocks (Adato & Meinzen, 2005). Seasonality incorporates the effects of seasonality on prices, production, health and employment opportunities (DFID, 1999). Such trends happen over a long period of time, thus taking a toll on already ailing livelihood systems.

This vulnerability context comprises of the nature of poor people's livelihoods, characterised by fragility and uncertainty, which becomes a major starting point for any poverty-related analysis (Chambers, 1983). Their ability to cope with stresses and shocks determines how vulnerable or resilient a system is (DFID, 1999). The interaction between resilience and vulnerability is what determines how much a livelihood system has been put at risk, expressed as a formula ($H \times V/R=R$) (I will engage with risk later in this chapter). Vulnerability is highly influenced by the assets that a household or a social unit has at its disposal and the policies and processes that mediate access to those assets.

The sustainable livelihoods' framework is a platform for understanding the issues in a particular environment that might cause a poor person to take on a particular strategy to earn a living or join one group and not another. Working with farmers, and trying to understand their risks

required me to appreciate their circumstances first and to view their world from their vantage point. However in contexts like the one where I carried out this research where two opposing knowledge systems are embraced, how were respondents viewed? What value was attached to their knowledge?

2.7.1.3.2 Livelihood assets

Livelihood assets are non-renewable resources like land, water and forests, among others. The assets are categorised as natural, human, physical, social and financial. Social assets refer to the social networks that people have at their disposal that provide the informal safety nets for many poor people. Physical assets refer to those different forms of infrastructure that enable people to gain access to resources. Financial assets include income, credit and investments that a particular livelihood system can appropriate. Last and most importantly (for this study), is the human assets which stand for the “skills, knowledge education, ability to labour and good health” of people in a system (Jaspers, 2006, p. 1).

According to DFID (1999), the impact of the vulnerability context on livelihood assets is what will determine the livelihood outcome. The interplay between the asset base and what is happening in the external environment determines the resilience of a livelihood system. DFID (ibid) has also referred to assets as the building blocks of the livelihood system because people are the starting point of any livelihood system. Assets are those entitlements or endowments that a particular livelihood system has at its disposal (Chambers & Conway, 1999). Assets are presented in such a way that none of the assets-capitals can exist on their own; they have to interact to produce a particular livelihood outcome. Whitehead believes the assets that people have or which are commanded by a particular livelihood system are not only a source of sustenance and meaning for a livelihood system, but they also give that particular system power to decide and to allocate resources as needs arise (2002). Power to appropriate resources is at the centre of approaches that view people as having something to contribute to the development process because these assets form people’s contribution thereto. When combined, assets help a particular livelihood system to fight off the effects of shocks, trends and all kinds of vulnerabilities. In the same vein, it is the interplay between the asset base and the vulnerability context of a livelihood system that determines how much the system will be put at risk (I will explain risk in the framework later in this chapter).

Guided by the principles of people-centeredness, holism and dynamism of livelihoods, as discussed by Jaspers (2006), the sustainable livelihoods' framework brings people and their knowledge to the project of development and aims to make use of what they have. This includes whatever knowledge and skills that they already have in an environment. What is not evident is how such choices are made by those who are classified as 'poor and backward' in modernisation discourse yet 'resourceful and powerful' in the sustainable livelihoods' framework discourse. I will revisit the argument on local knowledge and livelihoods later in this chapter.

2.7.1.3.3 Policies, structures and processes

Policies, structures and processes include the institutions, organisations, policies and legislative framework that mediate the access and utilisation of different assets to achieve desirable livelihood outcomes (Jaspers, 2006). Policies, structures and processes include the political, cultural, social and economic spheres of a livelihood, from the smallest unit in society to the global level. They are the organising principles of a livelihood system and provide the wider context within which resources from the asset base are applied to reduce the occurrences in the vulnerability context (DFID, 1999). The institutions provide the rules that usually govern how people will secure livelihoods, while the structures provide the framework and the limits within which livelihood strategies can be employed to achieve desired outcomes.

The transforming structures and processes provide the means through which assets can be accessed, thereby having a role to play in the vulnerability context. They can determine how much cushioning one gets from a particular shock or stress or seasonality (DFID, 1999). For example, a policy on drought will determine how much help a government gives to cushion individuals from the effects of that drought, which will in turn determine the level of vulnerability that such a livelihood system will have to deal with. In addition, depending on what policies are promoted at a particular time, they influence what livelihood strategies are taken on by different people to achieve their livelihood outcomes. For instance, if we take the Uganda government's policy on agricultural extension, it determines what assistance farmers receive from government when at risk. At the household level, structures comprise the social structures that organise the distribution of resources and ownership of assets determines who gets access or control to different types of assets.

2.7.1.3.4 Livelihood strategies

One underlying principle of the livelihoods' framework is that people engage in different kinds of activities to achieve livelihoods security (Chambers, 1983). What people do to meet their livelihood outcomes are livelihood strategies (represented by blue arrows in figure 1). It is up to those interested in working with such people to understand this and incorporate it in their analyses. Livelihood strategies include productive activities, investment activities, reproductive choices and other activities that a particular household or unit might undertake to attain security (DFID, 1999). As Adato and Meinzen (2005) argue, the reality of poor people in poor countries is that in order for them to survive, they have to diversify and engage in multiple livelihood activities. This is done by all family members simultaneously engaging in activities that enable them to take advantage of whatever opportunities and resources are available at different times (ibid). The choice of a livelihood strategy for any one social unit is influenced by accessibility to assets and the processes and institutions that mediate accessibility to such activities (Chambers & Conway, 1999). This helps to explain why a poor person might choose to take a course of action under certain circumstances that they might otherwise not have taken. For example, in a case where a household is lacking food, depending on the resources available to the household, different strategies might be adopted; a man might do casual work, a woman might exchange an animal (chicken) for grains; a child might chase birds from a field. All will take on those strategies depending on their capabilities.

At the heart of livelihood strategies, lies the reality of many poor people in rural households where they are continuously battling threats to their livelihoods. Therefore, their primary goal is to reduce risk and enhance security of their livelihoods (Chimhowu & Hulme, 2006). However, how do they actually reduce risk? How does extension education in agriculture contribute to this cause?

2.7.1.3.5 Livelihood outcomes

Livelihood outcomes are the expectations a person has after employing livelihood strategies, in a particular vulnerability context, mediated by given structures and processes (DFID, 1999). These are what a person hopes to achieve, by engaging in a particular activity mediated in a vulnerability context, by livelihood strategies. The intention might be to increase income, increase well-being, reduce vulnerability, improve food security or use resources sustainably.

2.7.1.3.5.1 Food security as a livelihood outcome

Food security, as defined by Løvendal and Knowles (2005, p. 3), exists when all people at all times have "physical and economic access to sufficient, safe and nutritious food to meet their

dietary needs and food preferences for an active and healthy life". This definition integrates stability in a food system, access to food, availability of nutritionally adequate food and the biological utilisation of food. Murkherjee (2007) agrees with this view, but adds a cultural dimension to the food that can be accessed, arguing that sometimes food might be available and accessible, but when it is culturally unacceptable, it will not ensure food security as some people may not consume it. For example, there might be chicken in a household, but in cultural settings where women are not allowed to consume it, they will not eat it.

Food security has been positioned as a basic element of livelihood outcomes when examining livelihoods security, because as Løvendal and Knowles have argued, it is both a means and an end to livelihoods security (2005). That is to say, a household or unit experiencing food insecurity will have all its assets put under duress in order to ensure that it recovers, which increases its level of vulnerability. Knowles and Løvendal (ibid) further argue that there are different levels of vulnerability for different households or communities depending on the ability of their systems to keep hunger at bay. Since food insecurity first manifests at the household level, the first strategies to fight off hunger are employed by the households. Akhter (2001) argues that for rural households whose major livelihood activity is food production, their major preoccupation is to secure food for their units above anything else. She further argues that rural households can ensure that their units are food secure as long as they are left in charge of their food production, distribution and exchange. This translates into food sovereignty.

The World Bank (2009) sets out the following three pillars on which food security is built, and emphasises that when one of them is not satisfied, there is a likelihood of food insecurity forming a bigger part of the risk environment of a livelihood system. The first is food availability, meaning a situation where people have or produce enough food for their particular social units at any one time. The second is physical access to food or the means to access it, in case it is to be bought. The last is food utilisation, which means making sure that the food eaten contains the right amount of nutrients to keep one healthy. When all three are fulfilled, then we can talk of a situation of food security (The World Bank, 2009, Delgado, 2010).

Bush (2007) gives a breakdown that shows the consequences of food insecurity at the global level. In early 2006, more than 40 million people in Africa were risking starvation due to food shortages. This is besides the 852 million people in the global South who are chronically and

acutely malnourished (ibid). According to Bush, it is the commoditisation of food and global regulations that have ensured that more and more people will go hungry as time goes on. Friedmann (1982) argued that separation of people from their freedom to grow their own food has caused a “crisis of subsistence” in which formerly subsistence farmers have been subjected to imported food that they have to buy with reducing incomes, with resulting hunger. This is supported by the arguments advanced by Shiva (1993), who is convinced that the policies in the countries that are chronically food insecure, based on scientific knowledge as the basic answer to food production, have alienated people from nature and caused its destruction. This has removed people’s power by making them dependent on multi-national corporations for food production.

Tilbury (2002) advocates for the return of power to produce food to the people. She argues that if communities are given control of their resources, consumption, production and their knowledge base and then if they make use of them, there is a higher chance of them attaining sustainability, than when this power is left to multi-national corporations. Whether this is possible under modernisation and liberalisation regimes is a question in which this study is interested. For instance, exploring lives of farmers will enable me to question what food security means for the poor and their vulnerability context.

The assumption underlying this study is that people engage in different livelihood activities to make a living. Their activities are not carried out in a vacuum, but are located within a context where they face stresses and shocks. In facing these shocks, farmers rely on the assets, but how do they appropriate them when faced with shocks? From the livelihoods’ framework, the argument is that assets are mediated by the different institutions, policies, and processes at the household, community or national levels. How does this manifest in the real lives of farmers? How does it all translate into livelihoods security or insecurity?

2.7.1.3.6 A critique of the livelihoods framework

Whitehead (2002) offers some criticisms of the livelihoods’ framework, arguing that there is not enough emphasis on relations, processes and institutions as a mediator of livelihoods. He further explains that in comparison, much emphasis is put on understanding the vulnerability contexts and the situation of the poor, but little attention is paid to the mediating factors in the framework. This has caused the framework to be understood more as a micro level analysis tool rather than one that can help understand the other levels (DFID, 2008).

Within the asset base, and particularly the capitals, discussed later in this chapter, Whitehead (2002) points out a challenge, which has to do with the attempts of the framework to understand the market and non-market elements of a household by emphasising the capitals that are available. He argues that the same capitals, i.e. capitals and assets, have been used in mainstream economics language and practice. There is a concern that such terms might be understood in that framework (of neo-classical economics) as capital, rather than the relational use in the livelihoods debates.

I have already pointed to literature that argues that interaction within the components of the livelihoods' framework is what leads to sustainable livelihoods. I have explained the components of the livelihoods' framework, but I have not engaged with the inter-relationship within the framework. I will now engage with literature which explains how the components interact with each other to create sustainability, the goal of the sustainable livelihoods' framework. The theories I present in the next section are what form the theoretical backing and the lens through which I approach sustainable livelihoods. I will first engage with sustainability and tease out how it has been theorised and then tackle the understanding of risk.

2.7.2 Sustainability

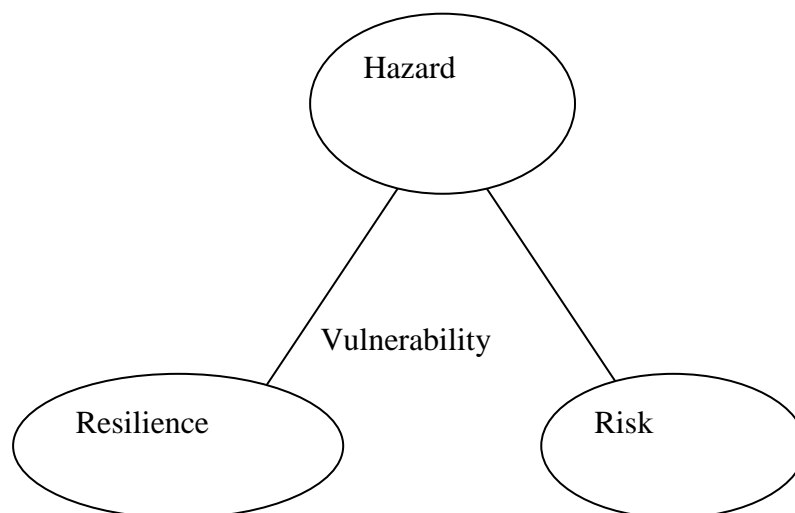


Figure 2.7.1.3-1: A visual presentation of sustainability

The figure above presents an illustration of sustainability by drawing on four issues: hazards, resilience, risk and vulnerability, as advanced by Chambers and Conway (1991). They explain that social sustainability, which is rooted in the philosophy of livelihoods and poverty debates, refers to whether a 'human unit', be it individual, household or family, can both gain and maintain an adequate and decent livelihood (1991, pp. 9-10). This involves two dimensions: one that is reactive, coping with stress and shocks; and the other that is proactive, enhancing and exercising capabilities and adapting to, exploiting and creating change, thus assuring continuity. Sustainability usually manifests in the ability of the system to fight off hazards, reducing its chances of being at risk. In other words, part of the argument is the idea that in the quest for survival, human beings are rendered vulnerable through two aspects, those being stresses and shocks. Stresses are usually continuous and accumulative while the shocks are more sudden and unpredictable. However, what Chambers and Conway emphasise is that defining livelihood sustainability has to include the ability to avoid, withstand and recover from stresses and shocks. For example, understanding sustainability would mean that one will study a livelihood system, how people make a living and then look at how they are able to recover from what the external environment throws at them, in terms of seasonality, shock, trends and stresses.

2.7.2.1 Understanding vulnerability

To understand vulnerability I shall look at the debates that have been raised on its everyday use and its usage in the livelihoods' framework.

2.7.2.1.1 The emergency-disaster perspective

Cardona (2004) postulates that three ways of understanding disasters have emerged, which have influenced the understanding and definition of vulnerability. These have their roots in the natural sciences, the applied sciences and the social sciences. The most prominent ones among these have been those that approach vulnerability as a cause of hazards and the others which understand it as a consequence of hazard.

Cardona (2004) suggests that the natural sciences tend to view vulnerability as a natural phenomenon. This is a more technocratic view of vulnerability that is concerned with measuring the impact of the damage and the predictions of what the disasters are likely to cause. The main focus is the natural phenomena and their impact on people. There is an underlying assumption that people are affected in the same way by disasters. If we assume that people are affected in the same measure by a disaster, then what about the assets that people have to

cope with any disasters? Isn't it possible that people's responses will differ depending on what they have at their disposal to cope with a particular disaster?

The major emphasis of the disaster perspective was on examining the damage of the natural phenomenon, the fragility and vulnerability of the exposed physical elements. Bankoff (2004) argues that because of the lack of agreement on what a disaster is between the one naming and the one experiencing it, it was hard to evaluate what and when a disaster was.

The understanding given by Cardona (2004) is what I have called the emergency-disaster debate. In this argument, there is an assumption that without an emergency there is no vulnerability. Resilience of a system is measured in the short-term for one particular occurrence and not on the long-term impact. However, with the nature of livelihoods of poor people, emergencies are not just floods, earth quakes or tsunamis. An emergency might take on a continuous existence in a particular livelihood system (Chambers, 1983). More so, this understanding assumes vulnerability as an outcome of an emergency and not as a continuous condition. This understanding works hand in hand with the physical sciences whose major concerns lay with the physical vulnerability of people, buildings, and other structures to such things as tsunamis and hurricanes. Risk and vulnerability assessment is done using probabilistic methods and geographical information systems (Bankoff, 2004). This is meant to understand and assess how much physical structures are put at risk by natural phenomena like hurricanes, storms and earthquakes. Risk assessment in the disaster-emergency perspective made its contribution to the physical sciences by helping to determine what structures and how such structures in different physical environments should/could be constructed.

2.7.2.1.2 The constructivist-livelihoods perspective

In the social sciences, according to Cardona (2004, p. 42), the vulnerability concept was borne out of the need to understand "reactions of individual and collective perceptions of people after a war". The coming into being of the concept of vulnerability was because it had become difficult to differentiate disaster from normal life. Vulnerability could not be measured without reference to the capacity of a population to absorb, respond and recover from the impact of an emergency. The concern of social scientists was more on the effects of the event on the lives of the people than on the physical magnitude of such an event (ibid).

Oliver-Smith (2004, p. 10) defines vulnerability from what she refers to as the "political ecological perspective", in which vulnerability is viewed as the conceptual nucleus from which a

relationship between people, their environment and their culture evolves. Oliver-Smith argues that vulnerability is a state that results from people's relationship with the environment, as people have a dominating relationship over nature. They have deliberately degraded it, a state which has caused many environmental disasters mediated by systems of exploitation and unequal systems of production. The degradation has led to a situation where different people in society feel the effects of such disasters differently. Their ability to recover from such a disaster will determine or will be determined by their level of vulnerability.

Von Kotze and Holloway (1999, p. 46) draw on the positions of Oliver-Smith and Cardona to define vulnerability as "a combination of factors that determine the degree to which someone's livelihood is put at risk". Ludi and Bird (2007) defined vulnerability as defencelessness, insecurity and exposure to risk, shocks and stress. They further elaborate that the degree of exposure of a livelihood system measured against the ability of that livelihood system to recover, prevent, mitigate and cope with that risk, gives the measure of that system's vulnerability (ibid). Adato and Meinzen (2005) break down the components of a vulnerability context of a livelihood as comprising trends, shocks and the asset base. These occurrences are out of people's control and yet influence the choice of livelihood strategies they employ. Chambers and Conway (1991) explain that vulnerability manifests in two forms: the external, which involves stresses and shocks to which people are subjected, and the internal, which is the ability of the livelihood to cope with the stresses and shocks. Thompson et al (2007) elaborate further that vulnerability damages people's livelihoods, in that it destroys their assets. In turn, when faced with vulnerability people concentrate their attention on actions that allow them to reduce their risks. When they avoid risks, people minimise damage to their livelihoods.

This argument introduces the concept of attitude into the understanding of vulnerability. Stress, however, is a personal experience detached from a whole system and it remains up to an individual to manage it in the best way they know. The view that stress is a personal experience is rooted in the understanding of the sustainability of livelihoods, which is of particular interest in my study.

While relating the term vulnerability to poverty studies, Cardona makes it clear that vulnerability is different from poverty. While poverty refers to a lack of basic needs, from the social point of view, vulnerability "signifies a lack of or a deficiency of development" (2004, p. 44). Cardona further argues that vulnerability tends to have some overlaps with the social security and

livelihoods discourses when viewed from the disaster perspective (2004-2-3). Cardona argues that, both discourses attempt to understand the different means through which people attempt to cope with uncertainty, risk and insecurity in their lives.

2.7.2.1.2.1 A critique of the constructivist-livelihood perspective

Foster (2004) is concerned that recently, vulnerability is being measured along a continuum in which at one end is a system which can recover from an unfortunate event (disaster or hazard) and at the other, a system which has no capacity to pull itself out of such disaster. The latter does not depict the lives of the poor who move in and out of vulnerability depending on the shocks, stresses and trends they are experiencing. Foster (2004) argues that a state of being vulnerable is not a constant for any system, in that any particular system will pull out all the 'tools' at its disposal to deal with a particular form of vulnerability.

Delica-Willison and Willison (2004) explain that stress in a vulnerability context derives from the way in which a particular situation is perceived and the reaction adopted towards it. For these writers, part of the vulnerability is at the individual level and not at the livelihood system level. They believe the level of vulnerability starts with one's perception of one's ability to disengage from the situation, because stress to the individual will strain the resources one has to waive off vulnerability. Based on their experiences in Mozambique, they argue that if people feel the uncertainty of their survival, their internal stress is heightened which makes them less able to prepare for or to mitigate against and survive hazards. This critique therefore places the ability of the person to manage risk and face hazards in their own capacity as humans, and not in the structures that are emphasised by the livelihoods perspective.

2.7.2.2 Risk

The understanding developed here of risk is derived from the understanding of vulnerability. Due to this attachment, the definitions and understanding developed for risk are defined in the same perspectives as the previous conceptualisation of vulnerability. There have been two major ways of approaching the concept of risk in literature. One perspective is rooted in literature on natural disasters, and the other perspective is rooted in the structuralist man-made disasters.

2.7.2.2.1 The natural disasters perspective

According to Cardona, the natural disasters perspective is concerned with estimating the damage of a particular disaster, making this perspective "partial and physicalist" (2004, p. 45).

This is because, according to Cardona, people in this perspective are more concerned with estimating the damage and future loss scenarios of the event itself. Risk is something that is quantified as a 'static' and 'frozen' element to be photographed. It can be quantified and the impact anticipated, and prevention measures then planned based on that understanding.

This view however has been fostered by conceptualising vulnerability that looks at it as simply exposure or susceptibility of a system, without making any reference at all to the resilience of that system and the capacity to recover and absorb the impact (Cardona, 2004). The people who exist within that system are categorised as the risk to human life and nothing more. The natural disasters view, is drawn from the conceptions that see hazard as a natural phenomenon with no human face to it. In most cases, those who perceive of hazards as natural phenomena have failed to differentiate between a risk and a hazard.

2.7.2.2.2 Constructivist-livelihoods perspective

Cardona (2004) argues that social scientists draw on constructivism to define risk and to emphasise that the right way to understand risk is to take into account the people affected and their perceptions of risk. Cardona defines risk as a potential loss to an exposed system or subject, resulting from the convolution of hazard and vulnerability. Cardona further argues that when scholars talk of reducing or preventing vulnerability, what they are actually talking about is risk reduction. From this, I can construct that risk is a result of three issues in livelihoods: hazard, vulnerability and resilience.

Cardona (2004) explains that risk is complex, curious, yet imaginary and difficult to grasp because it only exists in the future and not the present. He argues that in the concept 'risk', eventuality, consequence and context all converge to help estimate or define risk. He says that historically, risk analysis has been used in innumerable human situations. It is associated with decision-making and has a performative character which is to increase certainty. According to Cardona, this is because hazard and vulnerability are mutually conditioning, in that where there is a hazard the levels of vulnerability are heightened and if the system is said to be vulnerable, a hazard will have been a causal factor. However, the two concepts are only conceptualised differently for methodological reasons and to help us understand risk better. Cardona's view is that some authors refer to risk as vulnerability and many have used it to refer to 'vulnerable groups', meaning children, the disabled and women. He wonders what these groups are

vulnerable to. In his understanding if there is no hazard to which the people are vulnerable, it is not proper to refer to these groups as vulnerable.

Like vulnerability, risk and risk assessment have been centred in the disaster risk paradigm with natural sciences engaging with it more than the social sciences. Cardona (2004) makes reference to some models that have been developed to explain risk, like the “access model” which suggests risk is generated as a result of some difficulties which social groups or families have in accessing resources. This model, drawn from the works of Sen (1999) and Chambers (1983), identifies the limitations and facilities through which accumulation is achieved or the decrease in important capacities when faced with potential disasters. This is based on the idea that when faced with a uniform hazard, the risk to a particular family or unit will differ depending on the capabilities and assets at the family’s disposal to absorb the impact (Cardona, 2004). For example, if an earthquake hits a village, what happens to their livelihood system afterwards will depend not only on their own disaster preparedness strategies, but also on the help they will be able to attract from those around them.

Cardona (2004) suggests that social scientists draw on constructivism to define risk and in this way, they see risk as socially constructed. Von Kotze and Holloway (1999) affirm this argument by distinguishing between the western paradigm of risk and the ‘new’ paradigm. Von Kotze and Holloway believe that risk in the western thinking is the probability of physical harm due to technological and natural processes. This argument is similar to how the natural sciences argue and see people as helpless in the face of hazards.

In the ‘new constructivist paradigm’ it is also recognised that any one hazard is embedded in the field of many other dangers and created by unjust social systems in which the state distributes risk disproportionately among its citizens (Bankoff, 2004). Beck (1998) and Giddens (1998) situate the concept of risk in modernity and give a wide elaboration of how modernisation, as a field of many hazards, has created opportunities for risks to occur uncontrollably and unequally.

The modernisation project has also resulted in a wide range of risks which Beck has attributed to the “end of tradition”, in which he means the process of moving away from local ways of doing things (1998, p. 11). He argues that “the central paradox of risk society is that these internal risks are generated by the processes of modernisation which try to control them” (ibid).

While the modernisation project sees the end of tradition as the beginning of development, Beck argues that this will lead to more risks being negotiated. In his theory, Beck gives a view that seeks to problematise risk in a context of modernisation and industrialisation. Giddens (1998, p. 25) defines a risk society as one “where we increasingly live on a high technological frontier which absolutely no one completely understands and which generates a diversity of possible futures”. Giddens believed that this kind of risk is man-made. Beck attributes this to systems that have emerged where no one takes responsibility for anything. Under such conditions, nature is exploited and people live at the end of their traditions, but look on helplessly as they are further plunged into worse risks (Giddens, 1998). Based on this understanding of risk, Giddens (1998) and Beck, (1998) explain that risk has defied science and knowledge because some of the consequences of industrialisation produce “manufactured risks”, for which no one has solutions. Because of this, crises have emerged in agriculture as part of modernisation, and include famines, droughts, and floods. One of the major critiques of modernity is the idea that through modernising agriculture, modernity has increased scarcities, including food. However, we see that in the background, Ugandan agricultural policy functions on the belief that modernity will increase food availability. How does modernity increase scarcities or increase food availability?

The thrust of constructivists’ argument is that risk is not uniform to people in the same society. It is experienced and dealt with differently depending on three factors: the nature and magnitude of a hazard, the level of vulnerability, and the level of resilience of that system. Considering that vulnerability is determined by different unjust social structures in society, it follows logically that when faced with a hazard, it will depend on how resilient a system is to determine how much it is at risk. Lavell (2004) suggests that such risk be referred to as disaster risk. Disaster risk is conditioned and determined by everyday risk faced by people, the majority of whom live in abject poverty (ibid). Lavell (2004) suggests lifestyle risk as another category which refers to the permanent living conditions of poor populations, thus constituting a permanent threat to their physical and psychological livelihood security. However, the association of lifestyle to risk tends to lean towards the idea that poor people have a choice about the nature of lifestyle they adopt, while in most cases, they do not have such choice.

To understand risk therefore Cardona (2004) advises that we need to look at the capacity of a system or a person to absorb or respond to the impact. This means that when a livelihood system is fighting off threats, there may be factors that will increase its levels of resilience or

those that will increase its levels of susceptibility, putting it more at risk. All conceptions of risk have a common element: a distinction between reality and possibility.

From the arguments advanced thus far, there are several issues that emerge, which lead me to the following construction of risk, as partly derived from von Kotze and Holloway (1999):

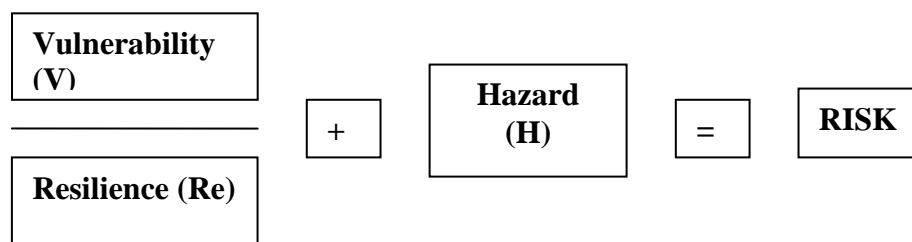


Figure 2.7.2.2-1: Meaning of risk

Furthermore, the wider global context is the field within which risk is articulated and apportioned. This is because sometimes people are predisposed to risk without subscribing to the ideals of such processes that put them at risk. Given that subsistence farming is playing out in this context, how does that affect strategies to manage risk? I will therefore develop an understanding that seeks to understand farmer's local farm risks. Secondly, I will engage with the understanding of risk that is espoused by Giddens (1998) and Beck (1998) to see how policies enhance livelihoods in the face of modernisation. Giddens and Beck have strongly argued that a policy may turn out to be the hazard that people need to work around to secure their livelihoods. I would like to explore agricultural extension practice in relation to this argument.

2.7.2.2.3 Hazards and resilience

What emerges out of the explanations given for vulnerability, from the disaster perspective and the livelihoods perspective, is that all livelihood systems exist in environments in which they will be subjected to shocks and stresses. The impact of that event however will depend on the system's resilience, i.e. the ability of the asset-base to cope. This will in turn give an indication of how at-risk or resilient the system is. The response will determine how vulnerable that system will be. Factors which determine the vulnerability of a particular system or household are generated by social, political and economic systems that are supposed to help in the reduction of those vulnerabilities.

Scoones (1998, p. 6) further points to the fact that there are many ways through which livelihoods are secured, but all these are mutually reinforcing. The principles underlying how people make a sustainable living is through livelihoods adaptation and resilience which in turn reduces vulnerability. Scoones (ibid) explains that central to the understanding of sustainable livelihoods are the issues of livelihood vulnerability and resilience, among others, because those who are unable to cope or adapt are inevitably faced with unsustainable livelihoods. Therefore, the more vulnerable the system is, the less resilient it is to hazards, the more at risk it is to livelihoods insecurity.

2.7.2.2.4 Differentiating between hazards and disasters

In order for us to develop an understanding between the emergency-disaster perspective and the constructivist-livelihoods perspective, we need to understand the difference between disasters and hazards. Bankoff (2004, p. 25) has argued that while hazards are natural, disasters are not. Hazards are natural phenomena, which occur anyway, but disasters are man-made. Hazards are natural events that occur because of changes in the weather or terrain of the land, such as earthquakes. Disasters on the other hand, are created by structures that apportion assets and resources in such a way that some people have what it takes to recover from a hazard and others do not. Another example is the 'paradox of plenty' that I explained earlier as a consequence of modernisation. Hunger in a place where there is plenty is a disaster that has been caused by unjust social and economic systems. Giuliani et al (2009) understand disasters to occur as a result of natural hazards on systems that are exposed to other hazards. A conglomeration of hazards, interplayed with the absence of a strong resilient system, results in vulnerability. Where hazards become permanent, this results in permanent vulnerability, as is the case with many poor people in developing countries (Chambers, 1983).

2.8 What constitutes knowledge in sustainability of livelihoods?

What constitutes useful knowledge in farming and agriculture as a form of sustaining livelihoods, as McGovern (2000) has suggested, is a question that we should let those who generate and use such knowledge answer. In the face of risk and vulnerability, what knowledge should agricultural extension programmes impart to increase resilience of poor people? Is it the modern knowledge as I have discussed in the debates on knowledge in modernisation? Is it the indigenous knowledge as has been discussed or is it perhaps the two working together to form a new type of knowledge, which secures their livelihoods?

life (2002) has suggested that poor people have their wisdom and this enables them to live their lives. Shiva (1993) and Roberts (2008) argue that letting people use their wisdom allows them to take back their power from those who diminished it with modernity, and to make decisions on what they want to use it for. Farmers, traditional healers, community members and the people who exist in the spaces within which this knowledge is generated and utilised, engage with it. As McGraw (1989) has implored, pragmatic as it may sound, as long as the practice works for the people who are using a form of knowledge, surely that should be enough for us who claim to be working with people. However, we also know that indigenous knowledge has limitations and shortcomings (see Briggs, 2005). However, is indigenous knowledge working for farmers, for instance? If so, why are there crises in agriculture? Why are people going hungry where food is being grown? What kind of knowledge do people have to acquire to manage risks? These are questions that have to be asked and which form part of this research.

2.9 Local knowledge, risk reduction for livelihoods security: linking the connections

Guided by the understanding of the livelihoods' framework that I have already described, I will engage with the issues I want to study based on the following principles that are all incorporated in this framework of understanding poor people's livelihoods.

2.9.1 Knowledge as asset

The livelihoods' framework values people as having assets which include 'resources, stores and entitlements' which provide means for securing their livelihoods (Chambers & Conway, 1991, p.7). The result of the people's efforts is the security of livelihoods, which involves being able to cope with stresses and shocks, hence reducing vulnerability. As already mentioned, assets are what people have and value and these provide the material and social means to achieve livelihoods and food security. One of these resources is knowledge interfaced with other assets and capabilities (Gorjestani, 2001). While arguing for knowledge as a resource that people have and its relationship to the security of livelihoods, Tilbury states:

Sustainability will only be achieved through communities attaining control over their resources, consumption, production and knowledge base. This does not mean that communities must become economically self-reliant, but that they recognize their own potential and knowledge and make better use of them. (2002, p. 177)

This reaffirms Freire's suggestion that peasants should not be left at the level of development where they are, but at the same time they should not be viewed as "empty vessels" into which knowledge is to be deposited (1985). Okech (2004) agrees with Freire and Tilbury that no

community can prosper without a home-grown knowledge foundation. However, how does home-grown knowledge deal with challenges that are not home-grown? Is that home-grown knowledge coping?

The fact that farmers have their local knowledge is very well documented by Shiva (1993); Bronkesha and Warren (1995); Government of Uganda (2003); Haverkort et al (1992); Mohan (2001); Chambers (1983); Semali (1999), where they provide examples of the knowledges that farmers possess. Freire (1985) argues that even when farmers are exposed to any 'new' knowledge, they first weigh up how that will affect their livelihoods security before they apply it. This is because, as Beck (1998) argues, risks have become part of life and are therefore inescapable, and the farmers in this case withstand the worst of these risks single-handedly. Knowledge which helps a farmer to survive a risk, is what needs to be understood in the context where it is applied. That is because such knowledge is what has enabled him or her to live through the constraint that the 'experts' have not experienced (McGovern, 2000). Such knowledge that is produced or applied in the face of vulnerability is powerful because it gives one power (the one applying it) to construct meaning of his/her situation enough to survive in their environment (Bankoff, 2004). Briggs (2005) further argues that for poor communities, knowledge is tested by how much it contributes to survival, making its holders very passionate about it because it will have contributed to their meaningful existence. Freire (1985) has argued that knowledge that is held by peasants should be nurtured and respected because it represents their creativity and their values and is already legitimate because they find it useful. This makes the process of knowledge construction as important as the knowledge constructed, because it is this process that also maintains life. This result in what Freire calls true knowledge, because it is lived and tested in a real life situation (Youngman, 1986; McLaren & Leonard, 1993). However, some authors argue as if indigenous/local knowledge can exist on its own in an environment that is market-driven. This study is concerned with understanding the interaction of the two schools of thought in such an environment.

2.9.2 Risk as constructed

My understanding of risk was drawn from the understanding I have characterised under the constructivist-livelihood perspective. My research will be guided by the theory developed by Cardona (2004), von Kotze and Holloway (1999) and Beck (1998). These theorists have argued that risk is socially situated in systems that ensure that people are not resilient enough

to fight off such risks. They also maintain that there are hazards, but these turn into disasters when people are not able to fight back.

The theory is that people are not helpless and are not just waiting to be developed as the modernists purport. People are resourceful and with their assets, knowledge being one of them, they can have an impact on how disastrous or not their lives will turn out. This will be the principle which informs this study and forms the basis for putting people's innovation at the centre of all activities in their lives, whether good or bad.

2.10 Emerging questions that guided the research

The literature review has established that the lives of poor people are prone to risks, which might be a result of modern systems or other events in their lives. It has also established that people are continuously creating and recreating, but whether what they recreate is enough to sustain their livelihoods has not been explored. Literature discusses the meaning of risk and how it manifests under different systems. There have been just a few examples of risks, but no concrete ones, of what subsistence farmers' face, the reality of their risk environment and how they negotiate their way out. There has been much acknowledgement that poor people are risk averse, but what it means and how that impacts on the livelihoods system and other activities is not explored in detail. Based on the arguments advanced by Beck and Giddens (1998), what happens to risk in modernity, but within a subsistence system, and how does the knowledge base help the situation or even worsen it?

Briggs (2005) contends that the focus of attention on local knowledge has been largely on its empirical and practical usage in a particular environment, which has left it endangered in the sense that it has sometimes been de-contextualised. In Briggs' understanding, the socio-cultural and economic context in which knowledge is created is equally important and gives this knowledge the quality of 'local' or 'indigeneity'. This makes it a detached entity and 'undresses' it of the environment that qualifies its usefulness and exposes it to much criticism. This study therefore makes a contribution to this debate by understanding the context of knowledge construction, the knowledge that is created and the process through which it is applied.

2.11 Conclusion

In this section, I have presented different perspectives on sustainability, vulnerability, risk and local knowledge; carved out my own understanding of the concepts and given the research a

framework for relating the issues I set out to understand. I have examined the modernisation theory as the theoretical context for policy formulation, but also as a benchmark for understanding what modernisation means at a theoretical level. I examined the debates in modernity: on knowledge, on power and control, on indigenous knowledge as part of modernity, and went into detail of the critique of modernity. In the second section, I examined sustainable development and sustainable livelihoods, giving the framework as an alternative to the modernisation thinking on development. I concluded the chapter by examining the meaning of sustainability and the emerging questions that led me to carry out this study. In the next section I will give a detailed description of the methods I used to collect my data and the reasons behind that.

CHAPTER THREE

RESEARCH METHODS AND THE FIELD WORK PROCESS

3.1 Introduction

In chapter one I outlined and justified my proposed study by giving a background to the function of knowledge in risk management, and why it needed to be studied. In chapter two, I explained the livelihoods' framework, food security and examined the place of knowledge in modernity, and the tensions that exist between the two forms of knowledge in development theory and practice. This provided the theoretical background for my study and firmly set my research in relation to what other scholars have written and researched in terms of local knowledge, vulnerability, risk and food security. In this chapter, I explain how I fulfilled my research objectives. I describe and justify the research design and methods I used and the challenges I faced.

The intention of carrying out this research was to find out how a modern agricultural extension programme relates to local agricultural knowledge in a high risk farming context, in terms of livelihoods security or insecurity. The study is based on smallholder crop farmers in rural Uganda, who participated in an extension programme organised by VEDCO. In order to understand the risks involved in agriculture, I needed to understand the context of the practices, the reasons behind the different practices and how the new knowledge responded or did not respond to risk. This required that I look at farmers' livelihoods, the way the extension programme was organised in relation to livelihoods, and the role that knowledge played in the livelihood system. I wanted to understand what livelihood activities farmers were involved in, what knowledge they were using in those livelihood activities and on that basis draw conclusions about knowledge as an asset in livelihoods security. The specific questions I wanted to answer included:

- a) What knowledge do farmers use in farming?
- b) What importance is attached to local and modern knowledges in the farming context?
- c) What is the purpose of training farmers, the content of the training and the methodology used in training by VEDCO?
- d) What risks are farmers exposed to in farming for food or cash?
- e) How does local knowledge as a resource help farmers to deal with risks associated with farming?
- f) How do farmers avoid farming-related risks in their lives?

- g) What are the farmers' experiences with the contradictions that are inherent in having two epistemological frameworks in the same field?
- h) How do farmers resolve the contradictions between the two frameworks?
- i) What are the implications of these findings for agricultural extension training?

To answer these questions, I had to study the crop farming system. I had to understand how the extension programme interfaced with the farmers' practices and knowledge. I needed to understand the risks farmers faced and how they found solutions to these challenges. Furthermore, to understand how useful knowledge was in their livelihoods, I had to understand farmers' knowledge and the processes and methods involved in its construction. This required a risk assessment that would be participatory, involving the farmers over a period of time. Therefore, a qualitative research design allowed me to explore all these aspects.

3.2 Research design

Broadly, there have been two types of research design, one quantitative and the other qualitative. Bless and Higson-Smith (1999) differentiate between the two by arguing that quantitative research design relies on measurement to compare and contrast different variables. Mouton (2001) also agrees and adds that in gathering large amounts of data, many researchers find it feasible to use the quantitative design. The researcher in the quantitative design is concerned with quantifying the variations (Kumar, 2008). Most of the power in the quantitative research process is in the hands of the researcher. The researcher pre-designs instruments based on certain criteria that he/she will have devised and the role of the respondent is to answer questions which have been controlled for all contexts. The researcher controls interaction between the researcher and object of research.

A quantitative design would not have been appropriate for my study because the data I needed was about people's experiences with knowledge and risks in farming. I needed to understand my respondents' world from their own perspective, and given the nature of the qualitative design, I knew that it would enable me to gather such data. I needed a design that would enable me to understand the inter-connectedness of farmers' activities and their knowledge. I needed to see and understand farmers' risks and experience how they went about managing these. Therefore, I employed a qualitative design, deeply-rooted in ethnography.

3.2.1 Qualitative research design

A qualitative research design uses language to provide a more sensitive and meaningful way of recording human experiences (Babbie, 1999) and seeks to understand people's ideas from

their own point of view (Mouton & Babbie, 2001). It is naturalistic and interpretive in its approach to its subject matter, enabling the researcher to study things in their natural setting and incorporate the meaning that people make out of their circumstances (Denzin & Lincoln, 1994). Firstly, the nature of the data I sought, i.e. obtaining an in-depth understanding of a farming system, required that I study farming knowledge in a place where it was being practised.

Secondly, studying local knowledge and how it was applied and the tensions that arose from its usage, required me to take cognisance of the argument raised by Chilisa and Preece (2005) that when local knowledge is de-contextualised, it runs the risk of losing meaning. In addition, I wanted to study knowledge as a part of a whole system, part of a culture and part of people so that I understand how it contributes to the process of maintaining life in that same system. More importantly, I wanted to be able to identify any tensions that arose in the interaction between the two systems of knowledge. It was important to understand tensions that arose when the two forms of knowledge were applied in the same field. It was under such interactions that the two forms of knowledge would collide or synchronise, enabling me to see what knowledge farmers drew on to ensure survival and why.

Thirdly, while doing this research, I did not want to 'mine' data' (see Chambers, 1983), but to learn and be an active participant. This is a characteristic that I draw from my experience as an adult educator: the need to feel that the learning has been a two-way process and that the respondents were not there to satisfy my research needs only but that there was something useful I was going to add to their lives. The qualitative design allowed me to be an active participant, and helped me to make sense of and interpret the livelihoods, knowledge and risks of the people, a quality that Denzin and Lincoln emphasise as important for qualitative research (2005).

Therefore, the choice of a qualitative approach was fitting for the purpose of the study, the respondents with whom I intended to work and the social context within which I was going to work. I did not intend to amass a large amount of information from a large number of people as would be the case with a quantitative design. On the contrary, I intended to follow a few participants who were already in farmers' groups and study their activities and lives deeply. I wanted to understand the choices they made, their reasons for doing so and to tease out the role of knowledge therein.

On another front, my study was informed by theories that look at people as creative and as possessing assets, and not as empty, helpless people waiting for assistance from outside their community. The emphasis is mainly on people in interaction with their environment, as actors in that system, rather than objects in that system. Given this background, a qualitative design, ethnographic in nature, was befitting to my theoretical background to allow me to answer my research questions.

Below I present the research process I followed and the methods I used to collect the data, and my experiences with each of them.

3.2.2 Case study methodology

This study relied on case study methodology. My unit of analysis was farmers who participated in VEDCO's extension education programme. Case study methodology allows researchers to establish in-depth insights and rapport with research participants (Mouton, 2001). Although it has been applied to quantitative and qualitative studies, this methodology has been widely used in educational qualitative studies, usually for small numbers of participants (50 or less) to give a detailed and in-depth examination (Mouton, 2001). For instance, Cooper (2006) also applied case study methodology to understand informal learning in a trade union.

Definition of case study

MacDonald and Walker defined a case study as "the examination of an instance in action" (cited in Bassey, 1999, p. 24). Yin (2003) has explained that the nature of a case study is such that a contemporary phenomenon is investigated within its real life context, especially when the boundaries between such phenomenon and context are not clear. In case studies, phenomena are studied as single instances or units (John, 2009). Case studies involve an in-depth and intensive inquiry whose intention seeks to reflect a rich and lively reality. In fact, Cohen et al (2000, p. 182) suggest that case studies strive to portray "what it is like to be in a particular situation, to catch the close-up reality and 'thick description of participants' lived experiences of, thoughts about and feelings for, a situation".

In a simple summary that brings together all the above ideas, Merriam (1998) explains that the term 'case study' is used in different ways, the conflation of which sometimes leads to confusion. She identifies three ways in which this term is used: the process of conducting a

case study (studying the case), the unit of study (the case that is studied), and the product of this type of investigation (the final written document). According to Merriam (ibid), a qualitative case study is characterised firstly, as particularistic in that it focuses on a particular situation. Secondly, it is descriptive in that it presents rich “thick” descriptions of phenomena, and lastly, it is heuristic, meaning that it illuminates the reader’s understanding of the subject under study to arrive at new meanings (Merriam, 1998, pp. 29-30). In examining the purpose of this study, a case study methodology would help me to arrive at rich, in-depth descriptions of farmers’ livelihoods and experiences, justifying its suitability for the current study.

Types of case studies

Case studies can be used in a variety of disciplines and as a consequence, they vary in their nature and phenomena under study. Yin (2003) identified three forms of case study: exploratory, explanatory and descriptive. Explanatory studies are those which allow hypotheses to be tested and theories developed as a result. Descriptive case studies tend to present a description of a phenomenon within a specific context. Lastly, exploratory case studies may involve grounded theory and may serve as a precursor to explanatory case studies. Bassey (1999) categorises case studies into four broad styles: ethnographic, evaluative, educational and action research. In an ethnographic case study, a single case is examined in-depth through participant observation supported by interview. Evaluative case studies are used in cases where educators or decision-makers need information to enable them to decide on the worth of policies, programmes and institutions. Educational case studies focus on understanding educational action, while action research case studies aim at contributing to developing the case under study or giving feedback that will feed into implementation or improvement of the entity.

With different forms of case studies, it is important to identify which type of case study a particular research is adopting. From the definitions given, I can deduce that the nature of case study is determined by one’s purpose in any research. For instance, given the purpose of this study, I engaged in an ethnographic case study (Bassey, 1999). It was an ethnographic case study, in the sense that I engaged with the respondents for a prolonged period of time (Tedlock, 2000) within their context. Prolonged stay was essential for me to understand how the respondents lived their lives, the decisions they took in different farming seasons, why they chose one strategy over another, and what the outcomes were in relation to their livelihoods. Ethnographic case study also allowed me to work with the people, see and experience what

they did on and off their farms, in order to understand their risk profile and survival strategies. I did not want to rely on secondary reports and books, I wanted to be there and experience with the farmers. This is informed by my background as an adult education student, with particular interest in social justice.

Why case study methodology

Although I have already explained the various advantages of using a case study methodology, it is important that I single out why the case study methodology is justified and has been used in other research projects. Cohen (2000) argued that case study methodology involves observation in which a researcher probes deeply and analyses intensively the various phenomena that make up a particular unit in a specific context. This allows specifics to be studied as part of one whole, helping one understand linkages that make up the whole (Stake 1995). Studying livelihood systems in this research benefited from case study methodology because it allowed all issues to be analysed as part of a life system. I observed and examined farmers' lives as specifics and yet also as part of a wider system, hence giving fresh meaning to what farmers did and how they did it. Case study methodology is not without limitations and setbacks.

Limitations of case study research

As in other research methods where the researcher is engrossed, in case study methodology the truth about the case can be distorted by a researcher to suit their circumstances since they are the ones deeply involved in analysing the case (Merriam & Simpson, 1984). Furthermore, sources that are consulted might influence the outcome of the case study, in that if other methods and sources are used the results might be different. In addition to sources, the subjectivity of the researcher has also been an area of contention in case studies. There is a concern that the researcher's biases and position on phenomena being studied might influence how a case is constructed and what it reveals. Merriam and Simpson (1995) suggest that the researcher should be aware of his/her biases and its impact on the research results. Another concern that has been raised about case studies is their restricted applicability. The argument is that since they are specific to a context and location, it is very difficult to apply their results to other cases.

However, Bell (1987) suggests that these limitations do not change the reality that case studies provide a rich store of information about a phenomenon. Bell emphasises that case studies can

“provide readers with a three-dimensional picture and ... illustrate the relationships, micropolitical issues and patterns of influence in a particular context” (1987, p. 12). It is this conviction and search for an in-depth understanding of knowledge in farmers’ livelihoods that allowed me to use case study methodology for the current study.

3.3 Selecting the host organisation

Considering my research question, I had to develop criteria for choosing the organisation to host the study. I developed criteria based on the following considerations:

- a) The organisation needed to be offering agricultural extension services at the time of the study and for the following eight months. My specific area of interest was smallholder agriculture because that is the area which dealt with ensuring livelihoods security.
- b) Studying local knowledge required that I target those spaces in which I would be likely to find local agricultural methods. The best space was within the rural setting where there is still a degree of togetherness and people of similar culture tending to stay in the same area. This would enable me to study a particular group as part of a whole cultural entity, rather than detaching the knowledge system. Detaching it would translate into de-contextualising it as local knowledge, a major caution for scholars studying local knowledge (see Chilisa and Preece, 2001). I therefore needed to work with an organisation that was operating in a rural area for me to achieve my research objective.
- c) The organisation needed to have farmers organised around several activities pertaining to their livelihoods security and had to have offered some form of training to these farmers.
- d) The organisation needed to be using participatory methods in its training programme so that what I was going to do did not seem strange and unacceptable to them.

I visited three institutions, that is, VEDCO, Environmental Alert and National Agricultural Advisory Services and found that Voluntary Efforts for Development Concerns (VEDCO) met the criteria I outlined above. Firstly, VEDCO had offices in Kampala, but much of its work was rural-based in three regions in Uganda. Secondly, VEDCO had secured funds for its programmes, which would give me ample time to conduct my fieldwork, with the assurance that lack of funds would not hinder extension work. To be more certain, the team leader suggested that I work with farmers on the PLAN/VEDCO project because it had already

received funding for activities, unlike other projects. Funding availability meant that they would be able to implement their activities for at least the time I was going to be in the field. Thirdly, VEDCO's major interest was and still is sustainable agriculture and livelihood' security, thus we had a shared interest. Lastly, by visiting VEDCO and spending time familiarising myself with literature and people who worked there, I could see that the organisation was open to people from outside working with the farmer groups, as opposed to other organisations who have an assumed ownership of 'their' farmers. VEDCO had students from different institutions working as interns, so having a student work with the organisation was common practice. Given these attributes, I contacted the team leader in Luwero with a reference from the Executive Director of VEDCO and explained the purpose of my research. On behalf of VEDCO, she accepted to host the study.

3.4 Selecting the study sites

The preliminary literature review I had done on VEDCO revealed a number of issues that later guided me in the choice of the study sites. First, I learnt that VEDCO carried out work in three regions in Uganda: the central, east and north. The north and east regions were out of my reach because I was not conversant with the language spoken there. In the central region, it had maintained a presence among farmers for 23 years. Second, in central region, VEDCO implemented programmes in Luwero, Nakaseke, Nakasongola² and Mukono. However, it was in Luwero where VEDCO had started its programme in 1988 and I wanted to be able to capture how that historical context influenced knowledge and risk. Lastly, Luwero was the seat for the head of VEDCO's central region team of extension workers, so it gave me the opportunity to interact with all project officers from different districts under central region. Next, I had to choose the groups with whom I would work in Luwero district.

I went through all the literature about the groups and met with the VEDCO field officers from three districts of Luwero, Nakaseke and Nakasongola to give me an idea of what the areas they worked in were like. Each of the field officers explained to me that they were in charge of 100 groups, so it would be helpful if I developed criteria to guide them in identifying areas. I also suggested that I visit the areas in which they were working to see what the groups were actually doing. I developed the following criteria for selecting groups with whom to work:

² The districts of Nakasongola and Nakaseke were recently carved out of Luwero district, otherwise it used to be one district called Luwero. In some cases, after cutting off Nakaseke district, for example, VEDCO found that it had farmers on either side.

- a) The groups had to have activities running and would have received funding to last them at least the eight month period of my field work. This was important because VEDCO used a project approach where different activities were funded by different funding agencies and their finances came in at different times of the year. Without funding, there would be no activities carried out.
- b) They had to be groups that had been operational for at least two years and had been active in the last year. It was explained to me that some groups start and die out. These would have received trainings from VEDCO, but along the way the group falls apart.
- c) To understand how extension knowledge provided by VEDCO had influenced farming, I needed to interact with farmers in a village where VEDCO had implemented its initial programme in the 1980s. This would enable me to understand if there were any differences between such groups' activities and activities of other groups, which were established after the war.
- d) After visiting the villages and knowing that I would be going to work with the farmers on my own, I needed to know that they were accessible by road transport. By transport, I mean having access to motorbikes that would take me from the main road to the villages.
- e) I learnt from extension workers that VEDCO trained trainers at village level called rural development extensionists (RDEs). RDEs carried out farmer-to-farmer extension education in the absence of extension workers. I therefore needed groups whose RDEs had attended VEDCO trainings, thereby having interacted with modern extension knowledge (this will be expanded further in the next chapter).
- f) The extension workers explained to me that two parts of Luwero district and one part of Nakasongola district were involved in different farming activities. They advised that I take one village in the north and another in the south to capture this difference and not assume a similarity.

During discussion with extension officers from the three districts mentioned above, it emerged that one group in Nakaseke and five groups in Luwero met the criteria. I decided to visit the groups, talk with the farmers and find out about their meetings and group dynamics, so that I would make a choice of the four groups to work with. I visited Semuto, Kikyusa, Kikube, Kasaala, Nsanvu and Sambwe and met with farmers in their groups. Travelling to these villages helped me to gauge the distance travelled to and from the sites as well as the facilities

available. I selected Kasala and Sambwe. Semuto was in another district (Nakaseke) and only one group was very active. In Kikyusa, the composition of the group was mainly members of one family and their leaders had not attended most of the training. Kikube and Kasala were also close to each other so it would not provide variation in terms of social conditions. I had to choose one out of these.

Kasala and Sambwe are parishes and each parish had 10 groups. Of those groups, in Kasaala, two were active, had meetings and met regularly. In Sambwe there were also two groups that were active. All farmers in these groups were under the PLAN project. I found that there were only a few members in the other groups, in both villages, with usually no more than five members active. When meetings were called, they did not come. Working with such a group would not help my research because that would mean that there would be little or no interaction between farmers and extension workers.

Each of the groups I selected had a composition of 25 members, but the active members were usually fewer than that. In each of the groups, I went through the RDEs' records on attendance of trainings and meetings, at least for meetings with extension workers. I needed to know that farmers had and would therefore be attending group activities while I was in the field. With this in mind, I purposively selected ten farmers in each group. However, by the end of the study, those who remained actively involved in the group, hence study, were just 36 due to personal reasons. In addition to 36 farmers, I also included 4 extension workers to make the total number of study participants forty (40).

3.5 Meeting with programme staff

After identifying the areas where I was going to work, the team leader organised a meeting to introduce me to the staff. This was done to help them to understand what I was doing and how they could help me to be part of the organisation. I explained what I was going to do and where I was going to do it. I was then assigned a field officer who was to help with travelling to villages, as I did not know my way around these villages, especially the locations of people's farms. Motorbikes were the easiest mode of transport to the villages from the field office, and I did not know how to ride one. Therefore, I needed someone to help by riding me to the field as most of the homes were long distances apart. If I had had to walk the distance, I would waste time and also have limited interaction with farmers.

3.6 Data collection

The data collection process involved the use of Participatory Rural Appraisal (PRA) tools which are rooted in the philosophy of Freire and discussed extensively by Chambers (1996). In Chambers' view, PRA is "a growing family of approaches, methods, attitudes and behaviours that enable and empower people to share, analyse and enhance their knowledge of life and conditions, and to plan, act, monitor and evaluate" (2001, p. 2). The basic principle of PRA that Chambers highlights in the definition is that people have the ability to share and analyse their own situations, helping them to widen the understanding they have of their environment and its conditions.

The methods I used to collect data included document review, seasonality calendars, timelines, participant observation, informal interviews, and group discussions. These methods were all grounded in participatory research thinking, and in the belief that the farmers had much to teach me about their lives since they are the ones who live it.

3.6.1 Population for the study.

The study involved different methods as outlined above and explained below. However, not all methods were used with all participants of the study. The selection of the methods to be used for different participants was influenced by the nature of information required, and what work they did amongst others. Below is a tabular presentation of the participants of the study and the methods used for each category.

Table 0-1: Methods used for study population

Data collection method	Category of participants	No. of participants	Location
Participant observation	All study participants	40	Kasaala, Sambwe, Kikoma
Group discussions	Farmers	36	Kasaala, Sambwe
Informal interviews	All study participants	40	Kasaala, Sambwe, Kikoma
Timeline	Farmers	36	Kasaala, Sambwe
Seasonality calendar	Farmers	36	Kasaala, Sambwe

3.6.2 Document review

In order to understand the programme in which I was going to work and the policies and regulations that guided that, I needed to first understand what had been written about it. As Irwin (2001) advises on document review, my undertaking included both electronic and other sources. I read about the VEDCO programme, its methodology and its learning and training materials and manuals. The history of the VEDCO and its programmes was of particular interest to me, because it later showed how the philosophy of the organisation had changed with the changing agricultural policies and other changes in the environment, sometimes causing contradictions in the approaches used. It was also important to understand if there was any deliberate effort by the organisation to undertake or incorporate, at policy and implementation levels, any knowledge of the farmers. This would help me to understand the position VEDCO adopted in approaching knowledge construction, contestation and utilisation. I also reviewed materials to help me to understand the meaning of 'sustainability' in sustainable agriculture in the programme, so that I could explore how this was experienced in the field by both the field officers and the farmers.

3.6.3 The tools

3.6.3.1 Mapping of seasonality

A seasonality calendar has been defined by Kumar (2002) as a tool that explores the seasonal constraints, shocks, stresses and opportunities that farmers face in a given agricultural year. He further explains that a seasonality calendar helps one to build rapport with the research participants because they are involved in teaching the researcher about their own lives. Considering that studies have shown that seasonality is a major issue informing part of the livelihood context, this method enabled me to make an analysis of livelihoods and seasonality in detail.

To construct the seasonality calendar, farmers were requested to construct a detailed description of the activities they carried out at different times of the year. In addition to detailing this, they explored the activities and associated risk factors. I noticed that because of its participatory nature, people were comfortable to verbalise their constraints, challenges and coping mechanisms. In the discussion that followed each activity, I found that it was their own experiences being shared and they challenged each other to clarify what was said. The seasonality calendar was the first tool I employed in each of the groups with whom I worked. Before I began, I introduced the method and asked for their permission to work with them.

Every group from the four villages constructed a seasonality calendar. This process enabled me to establish rapport and helped me to emphasise the fact that they would be my teachers for the next eight months. They initially laughed, asking me what I expected them to teach me. Along the way, they realised that I was letting them tell me about their lives. They were lively and engaged in many discussions about farming. We discussed the different risks they faced in each season along the seasonal calendar.

The process of constructing the calendars is an example of what Mascarenhas et al (1991) have argued as helping the researcher to understand the people's activities, based on their own interpretation of their time. I had planned to have two calendars, one for cash crops and the other for food crops, but then we (the farmers and I) agreed that one would suffice. They explained that there was no difference in the activities for cash crops and food crops, because the crops, apart from coffee, were the same. They also argued that most of the traditional cash crops, like coffee, were perennial and did not involve a lot of farm work. This taught me about the changes in the food crops and cash crop patterns and I became interested in knowing how that was affecting their livelihoods and knowledge bases. Seasonality calendars were first constructed on the ground, and later transferred by one of the community members onto paper provided. The information from the discussions held during and after constructing the calendars was recorded on tape or in a notebook.

Equipped with this knowledge, I was able to follow through the seasons and this became a point of reference, specifically when farmers would refer me back to the discussion we had had during this exercise. By the end of the exercise, I had learnt many things: farmers felt that they had taught me something valuable that would help me with my studies. In the beginning they were calling me *musomesa* (teacher, and a title for field officers) but by the end, they were calling me *musomi* (learner) or *muwala wange* (my child).

3.6.3.2 The time line

This is a tool that captures significant events as perceived by a community in a chronological manner (Kumar, 2002). It takes note of historical landmarks and key events of a community, individual or institution ((Preece & Chilisa, 2005; Sillitoe et al, 2005). This method assumes that people have experienced different things in their communities differently and responded to them differently. Participants construct the calendar using any available materials to show what

has been happening in their communities, indicating important landmarks and events that have taken place in farming.

The time line for each group was usually done on the same day that the seasonality map (see section 3.6.2.1) was done. After constructing the timeline and seasonality map, farmers and I would have a discussion about what had emerged out of the time line and seasonality map. The time line was very instrumental in mapping the history of Luwero with a specific emphasis on the events that have characterised the Luwero Triangle. Participants mapped and remembered seasons of food scarcity, prices of food, influx of immigrant labours and other important events. This also provided entry points into discussions on risk assessment. For example, one group started from 1999, saying that they cannot forget that year because they experienced the worst period of food shortage. Mapping seasonality made the discussion very lively and gave all participants the opportunity to tell something about their lives in their community, because it was telling their story. I realised then that each had a unique life and personal story to tell because almost each household had approached these events differently.

3.6.3.3 Participant observation

Sillitoe et al (2005) have defined participant observation as a data collection method, where the researcher intensely interacts with the respondents in the research over a long period. Participant observation enables the researcher to interact with participants, as opposed to being an “onlooker” or “development tourist” who has no idea of how the respondents understand their world (Chilisa & Preece, 2005). The researcher is also a member of the community in which the research is done, which allows him or her to understand respondents’ lives from their perspective (David & Stutton, 2004). My intention was to observe empathetically to understand the actions and decisions taken by farmers about risks and livelihoods, from their own perspective (Mouton & Babbie, 2001).

Participant observation allowed me to ask questions and seek clarity on issues that I had not understood. I observed from September 2007 when I began interacting with the VEDCO staff and the farmers, until August 2008. I asked questions about what was not clear to me and clarified any questions that might have remained pending from another method. I also found observing useful in that it removed all forms of formality, enabling people to relax and making the interaction more enjoyable. Most of the lessons that I drew out of this study were through

participant observation. It acted as a validity tool too, because discussions that followed PRA methods were validated and confirmed by observation.

Scholars like Kumar (2008) have argued that in observation, participants are likely to exhibit expected behaviour instead of their natural behaviour. He further elaborates that naturally when people know that you are observing them, they tend to behave in an acceptable manner. Other scholars and my experience showed me that the respondents can only behave acceptably for a short period of time. As I interacted with them and we talked about their lives and other issues, there was reduced tension and more authenticity in their behaviour. By the time fieldwork ended, after eight and a half months, we interacted freely as farmers had become more relaxed. I recorded all my observations in a field journal, which I edited at the end of each field day to fill in gaps.

I observed the crops that were grown, the way they were managed and how knowledge was applied. I looked for possible tensions within activities informed by local and modern knowledge, for changes within the farming seasons and between seasons and for risks and coping mechanisms (see appendix III & IV). The purpose of this was to allow farmers to guide me along the seasons, showing their own interpretation of risk across different seasons. I followed up many observations with informal conversations and recorded all the conversations with a tape recorder and in a notebook.

I used participant observation to engage with all participants in this research. Participant observation enabled me to work with 36 farmers and four extension workers from VEDCO. In order to achieve my purpose, I had to closely and on a regular basis interact with them. Therefore I spent one week in each village from 29th September 2007, alternating the trips so that each village was given enough time. I spent approximately thirty nine (39) weeks in the field engaged with farmers.

3.6.3.4 Informal interviews

Babbie (1999, p. 163) defined a type of interview that he termed as a 'qualitative interview' as "an interaction between an interviewer and a respondent in which the specific interviewer has a general plan of inquiry but not a specific set of questions that must be asked in particular words and a particular order".

According to Babbie (1999), an informal interview is a conversation in which the interviewer establishes a particular direction for the conversation and pursues a specific topic raised by the respondent. The respondent does most of the talking. While carrying out this study, I found that most of the situations I found myself in were informal, in that we had conversations on farms, as I walked, as I was seated and as farmers were working. Given the unstructured nature of local farming systems, I did not want farmers to first stop digging, weeding or preparing a meal to attend to me. I therefore relied on ongoing informal interviews. For each farmer I worked with, I engaged him or her in an informal interview. The farmers were comfortable with these, because interviews did not put them on the spot, and they talked and I listened. I initially started by writing down what I heard in my field journal, until I felt that I needed a recorder to capture all the information. This helped not to break the line of discussion when the respondent was talking. Many of the stories I recorded were generated using this method. I found that between this method and participant observation, I was able to capture local knowledge and record it.

3.6.3.5 Group discussions

Group discussions were sometimes formal and other times, informal. It all depended on the time and the activity in which farmers were engaged. For me, any chance I had with farmers was interaction and learning time. Formal discussions were held in the community at RDE's homes and during farmers' meetings. They had no definite structure, but were mostly guided by a particular issue. Initially, I carried out formal discussions with farmers after presenting results from participatory tools, like the seasonality map and time line. Farmers organised themselves in groups to construct seasonality maps and timelines. After the construction process and group work, all farmers in a group came together and had a discussion on what all groups had presented. Each group first took its turn telling all members about what they had done, the symbols they had used and why. While presenting and after presenting, all farmers who had questions, additions or clarifications on anything from the seasonality map were given time to respond. The discussion gave farmers the opportunity to challenge each other and gave me a chance to validate data that came out of the other groups' work. Informally, when a group of farmers gathered together, over food, or over lunch, they would discuss different issues. In most cases if I was present, I joined them and asked about farming, local knowledge, VEDCO's work or any other issue. I recorded such findings on tape or in my notebook.

3.7 Data organisation and analysis tools

As part of organising what I had gathered, I found that the data had to be organised soon after fieldwork, in such a way that I could make sense of it. This relates to the argument raised by Denzin and Lincoln (2005) that data has to be organised in order for the researcher to interpret what it means. This argument is based on the endless creativity and interpretation that a qualitative researcher must be engaged in and do (ibid). Therefore, I grouped data according to methods of collection first so that I would develop a pattern in the data I had collected. I printed it out and cut it into different sections so that I would put the data that was related into one whole, thereby identifying patterns, similarities and differences in contexts. These sets of data were kept in separate folders according to the villages, giving each village a file within a particular folder. It was after organising data in folders that I started the next stage, the stage of data analysis.

Mouton (2001, p. 108) defines analysis as the “breaking up” of the data into manageable themes, patterns, trends and relationships. This process is extremely important because without it, the data collected will mean very little unless it is evaluated and interpreted with reference to the context in which it was generated (Mouton, 2001). The analysis for this study started as soon as the data collection process began (Preece & Chilisa, 2005). Making sense of emerging relationships required a back and forth process. At this point I first put the data aside and concentrated on writing chapter two and three of this thesis, and then when I came back to the data, I was able to interpret it with a fresh mind and in the context of my study. I was then able to construct meaningful interpretations from the data, to which I would then apply my theoretical framework.

To analyse the data that I present in chapter four, I relied on the conceptual framework that I developed in chapter two. I analysed the data based on the understanding of knowledge and work developed by Friere (1973). To understand farmers’ lives and activities in their context, I based this on the understanding developed in the sustainable livelihoods’ framework.

The analysis started with an examination of the farmers’ activities based on the livelihoods’ framework. The inter-connected nature of the components of the livelihoods’ framework formed a basis for me to understand the farmers’ livelihoods. Furthermore, the conceptions derived from livelihoods about risk and vulnerability were the tools that guided me in concluding

whether what was observed and said were risks or not and if so, what the nature of the risks was. For this part, I relied on the theory of risk advanced by von Kotze and Holloway (1999), Cardona (2004) and Beck (2000). These understandings look at risks as distributed by unjust systems which apportion the means for recovery disproportionately. This guided the understanding of risk and the risk society, and later provided the basis for the alternative out of the risk society.

For an understanding of what a sustainable livelihood system should be, I relied on the theory developed by DFID (Carney & Ashley, 1999), Scoones (1998) and Chambers and Conway (1991). These understandings postulate that a sustainable livelihood entails a system that is able to cope with hazards, thereby determining how much it will be put at risk.

Understanding what knowledge is, what useful knowledge is and the processes of knowledge acquisition, were informed by the theory of Freire (1972) which suggests that people are active agents in the process of their own development, as opposed to passive recipients. This opened the debate on the role of knowledge in development, based on the role of knowledge in the local context examined in this study.

3.8 Ethics and ethical considerations in research

Ethics

The way in which a researcher treats research participants is as important as the research project. Edwards and Kimmel (1998) have cautioned that any researcher interrogating people's lives has to understand the nature and purpose of the knowledge he or she is producing. This is what determines whether or not participants in that research are treated with dignity and respect (Kimmel, 1988). In research, this is what has been referred to as ethics. Unlike other research projects in which the respondents are just there to answer questions, I found that day after day I got closer to the farmers with whom I worked. Although this was good for gathering in-depth information, it required that I adhere to the required level of ethics. This meant that as much as their participation was important to me, we maintained a reasonable distance and only engaged in terms of what this research project demanded.

Confidentiality

The nature of my research project was such that I was in constant interaction with farmers, sharing their thoughts, experiences and space. It was therefore my responsibility as a

researcher to protect the confidentiality of research participants and only use this as agreed with them. Actually, Kimmel (1988, p.97) suggested that research participants' "responses" and any other identifiable information like their names, addresses and contact information must be kept confidential by the researcher. Following Kimmel's suggestion, I used pseudonyms for all participants with whom I engaged. In addition, I obtained informed consent from all study participants with whom I worked in the form of signed consent forms, showing their willingness to work with me. I explained to them that they were free to leave the research project if they felt that they wanted to. I made this clear, because I did not study participants to think that if they refused to participate, their benefits from VEDCO would be jeopardised. At the institutional level, I obtained ethical clearance from the University of KwaZulu-Natal in 2007 to carry out the research project (see appendix III).

Consent

As part of the requirements for all research projects in Uganda, I requested permission from the National Council of Science and Technology in Uganda and gained an identity card to proceed to the field and to access statutory instruments and policies when necessary (see appendix II).

Before working with farmers and extension workers, I had to obtain permission from VEDCO because it was through them that I was gaining entry into villages. I obtained permission from VEDCO through the team leader for central region. She assigned me an extension worker who in turn introduced me to farmers in the field. The team leader introduced me to all staff in the central region and requested that they give me assistance whenever I asked.

3.9 Limitations to the study

3.9.1 Bias

This research involved a process of interaction with people who had beliefs and ideas about several issues, and my role was to try to understand their circumstances from their own point of view. Although this was a process of learning and unlearning for me, like any other knowledge generation process, it would be wrong on my part to assume that I had no biases or that I was neutral, a factor that has been discussed by Kane (2001). In research this is referred to as bias.

Mouton suggested that the research must be analysed in the context in which it is generated so that the point of view of the researcher does not interfere with the process (2001). Kane suggests that the researcher's beliefs must be put in the open so that they are interrogated and

the people are made aware of them, including the researcher her/himself, especially in understanding the interpretations made of the data (2001). In this research therefore I made sure that the participants' ideas were recorded verbatim so that it would be interpreted as such. Data is presented in the form of quotes, and respondents 'speak' throughout the chapter. This allowed me to give interpretation in chapter five, based on those findings and I cross-reference for that purpose. In addition, I discussed data I gathered with the field workers, giving room for them to question what I had collected. Extension workers' interpretation always helped me to deal with my own biases before leaving the field.

3.9.2 Transport

The mode of transport to the field for all officers, including me, was by motorbike. However, I could not learn to ride a motorbike on the first day, so I started by riding with the field officer. This was limiting in that he had his own workload and I became an added responsibility. Even if he did not mind, this meant that we had to go to most places together to do his work and cover mine. We managed this very well and when he could not make it, I arranged for other means of transport and went on my own.

3.9.3 Getting to know the villages

I had a very short time to learn about all four villages and know where the farmers stayed and where their farms were located. Some farms were far away from farmers' homes, which caused me to get lost on some occasions when I was on my own. That happened before I was very familiar with the villages to the extent that on one of the days I went to the wrong village and I was on my own, without any field officer.

3.9.4 Time constraints

The farmers had their daily activity chart on which time was budgeted for, with no time to waste. If they considered a particular activity meaningless, they would not attend. All farmers groups were made up of 25, but general group activities were done by less than half of the group members. In some cases, meetings and other activities had to be postponed because the farmers did not attend. Even though the organisation knew that the planting season was a very busy one, due to reasons beyond farmers' control, VEDCO would conduct trainings that took farmers away from their farms, and these were poorly attended in most of the cases. This meant that my programme had to be flexible, for example, if I was supposed to meet a farmer

on a particular day and I could not find him or her, I would look for the next farmer in the cluster.

3.10 Conclusion

My study explored how knowledge was useful to farmers' livelihoods security as a development intervention. In this chapter, I have discussed the methods I used to conduct my study and the justifications for using them. I explained that I used a participatory methodology because the questions I wanted to answer were best suited for a qualitative methodology. I specifically used a case study methodology because it would enable me to focus on farmers in groups as a unit and help me get in-depth information about their lives. The methods I used for this research cannot however be a basis for generalising to other programmes involved in similar work. Rather, they could serve to help any organisation involved in similar work. In the previous chapter, I presented the literature I reviewed and theoretical tools for the study. In chapter four, I will present the findings gathered. It is presented in such a way that the functions of the organisation are laid out in the farmers' words, as well as their lives, risks and livelihoods.

CHAPTER FOUR

A PRESENTATION OF THE FINDINGS

4.1 Introduction

In chapter three, I examined and justified the methodology that helped me to collect the data I needed to answer my research questions. In this chapter, I provide detailed descriptions of what I found out in the field. The findings I present were drawn from discussions with farmers, informal conversations, informal interviews, participant observation and other participatory tools I used. I will start by introducing Voluntary Efforts for Development Concerns (VEDCO) the organisation which hosted the study, detailing its programmes, funding, activities and methods used. After introducing VEDCO, the second section will give a description of Luwero, the area in which I conducted fieldwork. This will comprise basic demographic, political and socio-economic information, which provide an understanding of the local context of life and livelihoods in Luwero. Lastly, I will examine farmers' lives in some depth, paying particular attention to their agricultural lives and their experiences, challenges and strategies on a season-by-season basis, over one agricultural calendar. These descriptions create the basis for understanding the environment from the farmers' point of view, their knowledge constructions and uses, and the decisions they took regarding different challenges at different times, within their physical spaces. The thick description of farmers' livelihoods, and VEDCO's activities is a major feature of case study methodology, and will later enable me to respond to the research questions set out in chapter one.

4.2 Introducing the organisation: Voluntary Efforts for Development Concerns (VEDCO)

4.2.1 VEDCO's mission

The mission of VEDCO is 'to empower small/medium holder farmers for food and nutrition security, agricultural and institutional development.

4.2.2 VEDCO's Vision.

The vision of the organisation is to have an "improved quality of life for small/medium holder farmers" (VEDCO, 2006).

4.2.3 VEDCO's programme goal

VEDCO's goal is to contribute to improving livelihoods of small and medium farmers and micro-entrepreneurs through sustainable food security and household income generation in central, northern and West Nile regions of Uganda.

4.2.4 VEDCO's Organisational structure

(Please see appendix V)

VEDCO is organised along a clear hierarchical structure headed by a Board of Directors that deals with policy issues and maintaining the philosophy of the organisation. At the management level, an Executive Director (ED) who is under the Board of Directors heads VEDCO and is responsible for implementing decisions taken by the Board. Directly under the Executive Director, is the Operations Manager (OPM) who sits in central regional offices and oversees both administrative and technical management of three regional offices, the central, the northern and eastern. Under the Operations Manager are team leaders (TL), who are the managers of field offices in different regions. Team leaders ensure that project officers (PO) and assistant project officers (APO) produce and implement their work plans, on a weekly basis. The project officers, the marketing development officer (MDO) and the project accountant were directly under the supervision of the team leader. These people in turn supervise the APOs and the accounts' assistant. Such was the formal structure of VEDCO.

At the field level, information usually flowed from the team leader of a particular place, to project officers, then to assistant project officers (APOs). From APOs, information flowed to Rural Development Extensionists (RDEs) and lastly to farmers in their groups. The nature of communication is such that there is a flow of information from top to bottom and back. The extension workers were the ones who dealt with the farm-level issues. The extension workers I worked with were all trained agricultural extension workers. The organisational structure at the field level is represented in the diagram below:

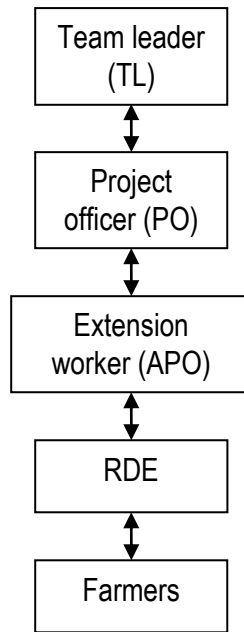


Figure 3.6.3.5-1: Reporting chain at the field level

The team leader heads a centre, including finance and administration, with several POs reporting to her/him. Field work/farm visits are mainly done by APOs and they are the ones who are known to RDEs. Occasionally, project officers go to the field when work demands it. RDEs are supposed to give peer-to-peer extension support to their fellow farmers. RDEs often see the extension workers (APOs) and report on what is happening in their farmer groups. If groups have issues beyond their abilities, this is referred to a meeting with farmers of a particular parish, in one village. Such meetings sometimes hold members of 10 groups in one village and the extension worker chairs the meetings. When farmers want to communicate with VEDCO, they take it through the RDE, who in turn takes it up with the extension worker assigned to that particular place. However, this does not stop other members of the group from communicating with extension workers. RDEs are charged with the following responsibilities:

- a) They provide the plot for hosting the field for which the organisation provides planting materials;
- b) They are supposed to guide the farmer group to learn from that demonstration field and to participate in its management so that learning is experiential;
- c) They mobilise farmers for any kind of training provided by the organisation (they are given a bicycle to carry out such mobilising activities);
- d) They attend all the RDE trainings organised by VEDCO;
- e) They participate in trainings for the other group members;

- f) They keep the materials for training in their homes, such as the black boards and chalk; and
- g) They provide technical extension support to farmers in their groups and report to the extension worker.

From VEDCO documents and observation in the field, each farmer group has a management team chaired by one of the group members, who chairs meetings and leads other group activities. In addition to the chairperson, each group has a publicity secretary and other committee members, as group members deem fit. The extension workers communicate most with the RDE when they are in a village. The RDEs are supported by APOs from the organisation to oversee the activities and guide the processes of the groups. RDEs benefit from their links with VEDCO as they receive training in many activities. In addition to training, RDEs also receive a tool kit for agricultural training, and they host fields and in most cases own whatever plants VEDCO gives to the group where they belonged. In addition, RDEs also have unlimited access to extension services and receive planting materials at subsidised rates, when they want to engage in commercial agriculture. However, subsidised materials are not exclusive to RDEs, and other farmers who can afford 50% of the cost of inputs, are also eligible for subsidised rates either as individuals or groups. Many farmers opted to cost-share animals, which in most cases were chickens and pigs. I will engage with the status of RDEs later in the chapter.

The organisational structure shows that VEDCO is organised like a cooperative institution, with people at the top of the hierarchy taking most of the decisions. The nature of the communication patterns and the views expressed by the field teams show this pattern of communication. This was interesting to observe and led to me to wonder how such relations and patterns influenced the knowledge construction and exchange processes. For example, I wondered if the farmers were then able to influence what was decided for them. What gave the organisation power to take the decisions it took and why. I will revisit these questions and attempt to respond to them in the next chapter in light of the findings presented in this chapter.

4.2.5 How VEDCO implements its programmes

From its inception, VEDCO sought to have village level management structures involved in the management of programme delivery as a way of promoting self-reliance. It did not want to be

seen to be taking decisions on matters that affected the community, but instead wanted to involve community people in decisions that affected them. Most workers at VEDCO were volunteers. VEDCO management instituted village development committees (VDCs), constituting seven farmers who would take on management of projects at village level. VEDCO also had programme village leaders (PVLs) who would follow up on decisions made at the village level (VEDCO, 1991, p. 6). They would undergo training in different issues to be able to assist their community members. The trained PVLs were later renamed Rural Development Extensionists (RDEs), a title that has persisted to date. According to VEDCO (2003, p. 21), the RDEs are trained to offer farmer-to-farmer extension services to farmers in their communities, in the hope that it will build a 'local' knowledge base and ensure that all farmers have access to extension services when required.

According to farmers in the VEDCO programme, RDEs are selected by farmers in the groups, based on the following criteria:

- a) The farmer who is chosen as RDE must be chosen by consensus by his or her group, b) they have to be committed enough to attend all the trainings, c) they have to have some piece of land for establishing demonstration fields when required, d) they have to be members of the village where they will serve as leads of farmers and e) they must be willing to try out the new knowledge they are going to learn. (Group discussions, October 1, 2007; October 4, 2007)

RDEs undergo phased training, for example for training in 2007-2009, 280 RDEs were to be identified and to undergo a 14-module training on basic extension skills. The content of the training included communication, low external input sustainable agriculture (LEISA), farm planning, crop enterprise development, livestock management and farming as a business. After training, RDEs were usually commissioned at a ceremony, and given a kit that included a bicycle, wheelbarrow, spade, forked hoe, spray pump, manure fork, watering can, water drum, gumboots and hand gloves. This kit was meant to be used by the RDEs when they trained and also to enable them to carry out their work. The tool kit was also supposed to be useful to the group members. Farmers were free to borrow items from the kit for use on their farms. Every RDE was supposed to host a field, for which farmers would receive VEDCO support to establish their own farms.

4.2.6 VEDCO's current programme

The current programme implemented by VEDCO for the period 2007-2009 has three components although these are not mutually exclusive: food security and nutrition management; agricultural trade development; and documentation, communication and advocacy. The primary programme that provides a foundation for other components is the food security and nutrition management programme. VEDCO implements its programmes based on the project approach, in which different funding agencies and organisations take on financial responsibility for funding different project activities. Each project has two to three officers in charge of implementing project activities, depending on availability of funds for the activities.

4.2.6.1 Food security and nutrition management

In the food security and nutrition management component, VEDCO aims to enable vulnerable households to meet their food security needs through a special focus on women. VEDCO argues that women were targeted under the food security programme because they are responsible for food provision in most homes (VEDCO, 2007). The current programme was building on the previous programme, which was called 'sustainable agriculture and food security'. In the current programme, VEDCO supports household groups to attain food security, and to later start producing for the market. VEDCO hopes to achieve its goal by promoting a strong farmer-to-farmer extension service system. The farmer-to-farmer extension system is where VEDCO trains farmers who teach other farmers, instead of all training coming from the organisation's extension workers. VEDCO supports trained farmers to access extension services, production inputs, recommended farming practices, improvements on soil productivity and to develop parameters for a food secure household. I will describe a training workshop that VEDCO conducted for food security to develop an understanding of how VEDCO carried out its activities.

Training in the management of bananas.

VEDCO carried out training for farmers to ensure that they were food secure. I attended four such trainings in different villages and I will describe the training process that farmers were involved in.

Food security situation analysis.

The training in food security started with an extension worker, based on the information he had about the groups assessing the food security problem in an area. I am the one who had used the term situation analysis, in its simplest sense to mean activities carried out by the extension worker to assess whether a family had food or not. In addition to food insecurity, the farmer had to be willing to take care of the banana suckers that VEDCO gave him or her. The extension worker requested the RDE to find out from her group which farmers would be willing to take banana suckers. They also needed to have land on which they were going to plant the banana suckers. They were supposed to commit to attend the training that VEDCO would carry out on management of bananas. After explaining the guidelines, the extension worker asked the farmers to decide on the training time and let him know, but it had to be done within two weeks' time, because VEDCO had passed its planned time for distributing banana suckers.

When the farmers were ready they informed the extension worker to go and carry out the training, because training before receiving planting materials was a must for VEDCO farmers. Four farmers were identified and each was supposed to receive 100 banana suckers. They all committed to attending the training and other members were also invited to attend the training. The members who were going to receive banana suckers were drawn from two farmers' groups.

The venue

The venue for the training was at an RDE's home, who was also going to receive banana suckers. She had land on which farmers would practice and learn as a hands-on experience. It was in her field, near her house where the training took place. The atmosphere was conducive for learning because it was a practical training. However, it was near the road so people who were passing-by kept interrupting the class and some of the passers-by were laughing at learners because "they were learning what was common knowledge".

The content.

The extension worker did not have a manual from which he drew content, but he had mastered all content from continuous training of farmers. He explained that:

We have manuals for training in all crops we promote. We have a manual for bananas, cassava, potatoes, upland rice and other crops. We developed the manuals as extension workers and different trainers so that the training we gave farmers would be

uniform. If we all rely on what we were taught in our different institutions, it might be different. Besides, the new crops come with their own guidelines, so we have to develop manuals based on those guidelines (EW, informal conversation, 4 April 2008).

The farmers were trained in how to prepare their field to receive the banana suckers, how to plant the suckers, the distance to leave between plants, how to fertilise and look after the plants. They were trained on a field of an RDE who already had three other fields of bananas. When we (with the extension officer) arrived for the training the farmers were already digging up the holes and they were using a string to measure the distance to be left between the plants. The following are the procedures they had to follow to plant bananas using modern methods as one farmer explained:

- 1) Attending training in management of bananas;
- 2) Preparation of land for plants, clearing it of all bushes, weeds and shrubs;
- 3) Measuring the distance between the plants (100 plants = 100 holes);
- 4) Digging holes, taking careful measures to get the depth, width and length right;
- 5) Identifying and putting manure in the field;
- 6) Putting manure in the holes and waiting two weeks for it to decompose or waiting for it to decompose while outside the hole and then putting it in;
- 7) Looking for mulch to cover up the rest of the field;
- 8) Uprooting/buying suckers carefully so as not to destroy the roots;
- 9) Planting the suckers;
- 10) Putting on mulch to cover the young plants;
- 11) Ensuring that it has enough water/planting when it rained; and
- 12) Weeding them often, lest they die.

Since bananas are perennial crops, they took more than one calendar year for one to harvest. (Group discussion, informal interviews, April 1, 2008)

In comparison, the following is what farmers went through to plant local bananas which they mainly relied on for food:

- 1) Identify a place to plant a new sucker;
- 2) Identify a type to uproot and plant, getting one that is grown enough not to die;
- 3) Dig a hole where the sucker is going to be planted – the measurements vary from farmer to farmer, but the farmers all explained that they use their eyes to measure;

- 4) Uproot the sucker; and
- 5) Plant the sucker in the identified place.

(Group discussion, April 1, 2008)

For some farmers, as we shall see later, the difference in the demands of the two forms of crops is what determined whether they would plant cash crops or food crops. The training therefore mattered in the context of several other factors.

How the training was conducted.

The extension worker arrived at the training venue at 9.00am. Seven farmers, 6 females and one male attended the training. The extension worker found that one RDE had already started showing the farmers how to prepare the holes for planting bananas. They were already measuring using a sisal string and sticks. The extension worker went around, looked at the holes, and told the farmers that for some of the holes, farmers had left more than the recommended space apart. He took them through the right measurements, explained to them the rest of the guidelines and they went back to digging and making holes. He asked some farmers to try and gather manure for putting in the holes. Each farmer was supposed to dig 100 holes for a hundred banana suckers. The farmers left at 2.00 p.m for their homes and the training ended then. The extension worker decided to visit the fields of all farmers who were supposed to receive young suckers. The picture below shows the venue of the training and some of the farmers who attended.



Figure 3.6.3.5-2: Farmers at a training in modern farming (1.04.08)

The informal nature in which the training was conducted fitted in with the informal nature of farmers' lives. Farmers were relaxed, gave answers and asked questions whenever possible. The extension worker allowed farmers to be in control of some aspects of the training process. However, when the extension worker arrived, the RDE who had been guiding farmers in the training handed over the process to him. She was only visible during the extension worker's absence. This became apparent when the extension workers told farmers that they had left more space between plants than they were supposed to. The farmers explained that it was Ismael, the male farmer who had advised them to leave such space, but they did not know why. When the extension worker asked Ismael, he explained that when little space was left, bananas fell before maturity and fell onto each other. He had changed his strategy on the farm a long time ago. The extension worker told the farmers to use the methods he had taught them and let Ismael make his own decisions. He (the extension worker) still expected farmers to follow his guidelines after hearing Ismael's explanation.

The way the training was conducted identified with banking education (Freire, 1972), whereby the extension worker always assumed that he had all the right material and knowledge and that farmers were there to receive. Power changed hands as soon as the expert (extension worker) came to the training and the RDE became a learner. I will expound on this later in the next chapter.

4.2.6.2 Agriculture trade development

The objective of this component of the programme is “to support collective production and marketing amongst farmers groups” (VEDCO, 2006). It offers support through transforming what VEDCO calls ‘model’ farmers. VEDCO refers to these as progressive farmers, those who are trained to first attain food security and then to engage in commercial agriculture, also known as farming as a business. VEDCO trains farmers in ‘farm business education’ (FBE) and after training, provides them with technical support regarding producing for the market. Farmers are encouraged to produce in groups, from which a RDE, is chosen to attend training. RDEs are supposed to host a demonstration field for crops given by VEDCO to their respective groups. The RDEs use these demonstration fields to show other farmers the recommended practices, which farmers then transfer to their own farms (I will explain this more fully when I explain how VEDCO implements its programmes later in this chapter). Extension workers are supposed to follow up on trained farmers, provide them with technical support on demonstration fields, and monitor how they are disseminating knowledge to farmers. I attended two such training events, specifically on ‘farming as a business’ details of which will be given below. The officer in charge of trade and marketing is supposed to keep abreast with what is happening in the market, and inform farmers thereof. VEDCO produces a weekly bulletin, which is distributed to farmers who have money to buy it.

A sample training in Farm Business Education (FBE)

Under the agriculture trade component, VEDCO farmers were trained in skills of practicing agriculture as a business. All training programmes have a defined structure, which they follow as one extension worker explained to me:

In all the trainings we carry out, we have to prepare our farmers to receive us because we do not want them to miss the trainings. We have to first mobilise the farmers. Mobilisation involves going to farmers homes and villages and informing them about

the training. They are able to tell us if they have any other activities planned that day. Then we decide on whether to meet the farmers or not. The number of trainings we carry out under each component depends on what our budget is, in our implementation plan. (Extension worker, 31/10/2007).

Following the explanation by the extension worker and from observation, mobilisation was indeed the first activity that was carried out for any particular training. For this particular training in farming as a business, the extension worker endeavoured to reach all farmers in their respective villages. He rode up to each RDE's home or fields to inform the farmers. The RDEs played a crucial role at the mobilisation stage because, while the extension worker informed each of them, they were responsible for choosing people from their groups to attend. The training was supposed to have four members from each of the 10 groups, making a total of 40 members.

Locating the venue

As he met farmers, the extension worker was also inquiring about a possible venue in any of the villages. One RDE was given the responsibility to look for a venue and inform the extension worker the next day. The extension worker and one RDE who had identified a venue, met the next day and shared the concerns about the venues. The RDE had secured a church in one of the villages, which would be provided for free. They also decided the date and started to inform the participants.

Preparing for the training.

The training had been planned in the VEDCO-PLAN implementation plan to equip farmers with skills that would enable farmers practice farming as a business. The day before the training I asked the extension worker what the training methods would be and he said that it would be like the other trainings they had carried out. I asked him what methods he was going to use and he said that he would use 'the participatory methods that we always use in the other trainings. Do not ask as if you have never seen these trainings. It will be like any other workshop where farmers will come and learn' (informal conversation, 15 June, 2008). I further asked what materials he would need so that I would help arrange them and he replied that he would need an FBE training manual, exercise books (for the participants), pens, markers and flipcharts.

Conducting the training

The farmers had been informed that the training would begin at 8.30 a.m, but the extension worker explained that they tended to arrive late so he arrived at the venue at 9.45 a.m. There were two farmers waiting for him when he arrived. They assured him that the others would come, and explained their late coming thus:

You know it is the planting season and people are also starting their weeding. Most of them first went to their fields, but those we found when we were coming, said that they would join us (informal conversation, James, June 17 2008).

The explanation given by the farmers was also reflected in the seasonal calendars where farmers expressed that in June and February they were very busy because of the rainy season. I had earlier on asked the extension worker why they plan for trainings in the busy time of the seasons and he replied thus:

Some of these trainings cannot be rescheduled because as you may have noticed, farmers are busy throughout the year. They do not have time where they are free, so we have to find time to fit these activities in the programme, because in the implementation plan, they had already been planned. But farmers usually try and attend the trainings. They will come late, but they will come and attend. They always want to learn, so they come (Extension worker, informal interview, February, 20 2008).

The above conversations showed that both VEDCO and the farmers were aware of time constraints, but they found a way of working together. After waiting for 30 minutes, the extension worker requested that they agree on a starting time so they would start with whoever would have arrived at that time. The group agreed that they would start at 11.00am.

Setting the climate for the training.

At 11.00 am training started with 14 of the expected 40 farmers for the training. The extension worker suggested that farmers introduce themselves. Firstly, books and pens were distributed to the farmers, so that they would take notes. The extension worker asked farmers what their expectations from the training were and they gave the following answers:

- a) To learn how to establish a business;
- b) To learn how to fertilise soil; and
- c) To learn how to get good planting materials, among others.

The extension worker suggested that farmers choose leaders for the training and they chose a chairman, a time keeper and then prayed. The extension worker also informed farmers about the timetable for the day and the training started.

The content of the training

The content to be covered was about practicing farming as a business, known as FBE in VEDCO's extension education language. The extension worker started with a brainstorming session about what a business is. Farmers gave their different views about the meaning. After the brainstorming session, the extension worker consulted the FBE training manual and gave them a definition from it. The definition he gave was a bit similar to what farmers had answered in the training session earlier. The extension worker did not make any reference to the answer given by the farmer.

After engaging with the definitions, the extension worker focused on the second section of how farming can be practiced as a business. He used a quick question-and-answer session, where farmers explained how they could turn their small scale farming into money generating entities. Farmers gave their answers and after that he consulted a manual and lectured them on how farming could be a lucrative business. The extension worker wrote notes on the black board and the farmers copied them into their books. Whenever he rubbed what he had written on the blackboard, some farmers complained that he was too fast for them. He changed and wrote on flip charts that could be put on the wall for farmers to continue copying down notes.

Farmers took a break to have lunch and some farmers took the chance to go back home. Women, especially those who came from neighbouring villages explained that they needed to prepare lunch for their children whom they had left at home.

After lunch, the extension worker tried to use a group method to organise the farmers. He requested farmers to get into groups and use a case study of any business to calculate income and expenditure patterns of farms as businesses. He asked farmers to be fast in their discussions because time was running out. Farmers discussed in their groups, but two of the groups spent much of their time arguing about the type of business to use as a case. After the discussions, farmers were invited to present what their groups had discussed. After all farmers had presented, the extension worker got the manual and got an example of a poultry farm and

used it to calculate the income and expenditure pattern. By the time he reached the end of the calculations, it was time for the training to end.

Methods used.

The methods used varied, but predominantly, the extension worker used the lecture method. He also applied some group methods like discussions that allowed farmers to express their views among their peers and in discussions with fellow farmers. However, the group methods were not used to feed into the learning process, rather the extension worker tended to follow the methods, which were prescribed in the manual. This made the learning process rigid because the only knowledge that farmers were learning was that which came from the manual. Their discussions did not mean anything in the learning process. I will explore this further in the next chapter to understand how methods used to train farmers influenced their adoption of modern knowledge.

Organisation of the classroom

The set up of a venue was what tended to influence how the farmers would be organised to learn in VEDCO trainings. In this particular FBE, the venue was a church. If chairs in a church were arranged facing the front, which is the traditional arrangement, that is how the seating arrangement for the training would be. In the FBE training, the seating arrangement was like that of a traditional classroom with the teacher in front, a black board erected for the training, and learners seated in rows facing the teacher. Learners sat on benches and the extension worker stood and taught. The arrangement of the class bore resemblance to a traditional formal school with a teacher and students separate, yet in the same room. The teacher taught and the students listened meekly and attentively, and took down notes. When learners were organised in groups they fitted themselves in the space available without any change in the organisation of sitting. The organisation of the classroom bore resemblance to the characteristics of banking education of Freire (1972). I will engage with this in the next chapter.

Evaluation

At the end of the discussion, farmers were given the opportunity to express what they thought of the training. The issues they raised had little to do with that they had learnt. None of the farmers commented about the content or the methods used, they all asked questions about other things. For instance, one farmer asked:

We are in the planting season and the major problem we are facing now is getting seeds to plant. We do not have seeds and yet the season will end before we have planted. Is there any way in which VEDCO plans to help us get planting seeds?

The extension worker explained to the farmer that the seeds that were supposed to be distributed to their groups have already been distributed, so VEDCO did not have any more plans and resources of distributing seeds.

Other farmers asked if they could be helped to get fertilisers and fight off rats and insects that ate their crops. The extension worker explained that he could not promise anything in his capacity, but he would present their concerns to the officers concerned at VEDCO. The RDEs were asked to sign up and also cross-check to see that their members had attended.

While the atmosphere in the classroom had been a little tense with the extension worker lecturing and giving farmers information, when the training ended is when they interacted freely. Farmers took time to ask the extension worker questions about other things that they had not addressed in the workshop. I felt that this was the best time to find out from the farmers what their feelings about the training were. Some farmers, felt that the training was good and that it met their needs as they explained:

The training was good and we have learnt a lot. We have learnt how to understand when we are making money or losses, because for us we just use money as and when it comes. We do not plan most of the time because the money is not there for us to plan. Therefore, we end up just using what we get and not keep anything for a bad day (Informal discussion, June 17 2008).

Other farmers who felt that they could have done better than they did said that:

We have had this training before with VEDCO. It is the same information that they have been teaching about FBE. For example, some of us here have attended more than one training and we go back to our farms and continue doing our farming. There is no one here who does not do small trading in farming. For us our fields are our shops, we budget, we buy, we sell and we learn many things as we go along. Now we want to learn something new about business, something challenging. We come for training because we do not want our extension workers to think that we do not respect them. (informal discussion, June 17, 2008).

The farmers who were involved in the informal discussion wanted something new and challenging. They wanted content that they had not interacted with before. Some of them had already attended the FBE training and knew what to expect. Furthermore, farmers felt that they were already involved in FBE and did not need to be trained again. Such experiences of farmers are what hindered them from attending trainings.

In the final analysis of the training, it shows that the power to decide on content and methods of delivery was in the hands of the facilitator. Even the RDEs whom VEDCO had trained did not contribute or influence the teaching process. According to the organisation, such training was an example of participatory training. VEDCO takes pride in relying on participatory methodology to carry out its trainings (see VEDCO, 2007). While participation is a noble intention, the way it was done in VEDCO trainings demonstrated a high degree of mechanical participatory methodology without actually taking into account the philosophy behind it and its purpose. In VEDCO's view, farmers always participated, but whether this is evident in the findings, will be discussed in the next chapter. Farmers were just in the classroom to receive information after which they expressed their concerns, most of which had nothing to do with farming as a business. Farmers' concerns were about vermin, the weather and planting materials. I will return to this later in this chapter.

4.2.6.3 Documentation, communication and advocacy

The objective of the documentation, communication and advocacy component is "to develop and implement an advocacy agenda on pertinent issues affecting agricultural production and marketing" (VEDCO, 2007). This programme component is based on the idea that farmers need to be involved in issues of policy that affect them, by enabling them to be seen and ensuring that their voices are heard. Advocacy involves creating awareness among farmers about issues that affect them, and provides a forum for farmers to express such issues. Project officers are encouraged to collect any good practices and stories from farmers to document. VEDCO had identified food security, access to land and access to markets, as some of the issues that its farmers deal with. It is on these issues that the advocacy agenda focuses.

For this research project, I interacted with officers handling each of the different components. However, the farmers I worked with were at the time mainly engaged with the livelihoods and nutrition programme.

4.2.7 Funding of VEDCO programmes

VEDCO's growth into a commercially oriented organisation from a voluntary people-oriented one has been greatly influenced by its funding agencies. At the time of this study, VEDCO was receiving funding from 10 funding agencies, some of whom were funding particular crops while others funded particular components of the programme. Funded components were managed as projects, with their own project officers and assistants who were also supported by the same funds. The farmers with whom I worked were under a project funded by PLAN International. PLAN provided funds and VEDCO provided labour to manage the funds and implement the programme. The history of VEDCO shows that its programme has shifted focus over a long period because of the requirements of funding agencies. One could not help but think that the nature of extension services VEDCO currently provides are also a manifestation of the interests of its funding agencies showing the challenges that VEDCO faced.

4.2.8 VEDCO: the historical context

VEDCO was started by university students whose parents had been cut off from the Luwero Triangle³ during the 1986 war (VEDCO, 1991). The students began a self-help organisation that helped families to locate their members after separation during the war, hence the name 'Voluntary Efforts for Development Concerns'. VEDCO became involved with distributing relief to people and helping those who returned. After the war, VEDCO wanted to do more, especially after the resettlement period, to help deal with some of the effects of the war that went beyond resettlement. These students felt that the people had developed a mentality of receiving because many organisations which were offering relief after the war, were merely giving them supplies to rebuild their lives and homes. According to VEDCO (1999, p. 4), a programme was formulated aimed at changing attitudes of people from relief to self-reliance. The concrete programme areas that VEDCO (1999) focused on were "social mobilisation, awareness building, agricultural extension services to ensure food security, preventive health care and provision of improved water supply". The intention was to change focus from viewing people in villages as receivers of relief from different organisations, to seeing them as citizens with capacity to be self-reliant. Their areas of operation included Sambwe, Kiyanda, and Nsanvu in Nyimbwa sub-county (VEDCO, 1991). Changes have taken place over 22 years and the programme has expanded to cover parts of northern and eastern regions of Uganda recently. Below I look at these changes and argue as part of my findings that these changes in

³ Luwero Triangle is the area occupied by seven districts, defined as such to mark the demarcations of the areas where the 1980s guerrilla bush war was concentrated.

VEDCO were in fact as a result of the changes in development thinking globally, rather than local people's development concerns being the primary catalyst.

4.2.8.1 Changes through the years

I will present changes in VEDCO in relation to changes in the world thinking on development to demonstrate the reasons behind the organisation's shifting focus. The juxtaposition will help me to explain how the broader environment has shaped some of the experiences that people have had with farming, and the impact it has had on farmers' survival strategies. According to VEDCO's strategic plan (2007-2009, p. 4), the periods of change have been categorised into four phases. The information on changes in VEDCO was taken from documents review.

Phase one (1988-1990) was the period after the war when VEDCO launched its People-Centred Rural Development Programme, with the major aim of enabling people to change from relief receivers to self-reliant farmers. The area of operation was limited to one sub-county in Luwero, called Nyimbwa, and it was meant to work with four groups of people. According to Babikwa (2003), in this same period VEDCO did not achieve many concrete results because it lacked financial capacity and still relied on volunteers. According to Babikwa, this setback coupled with the absence of a clear organisational structure, led to many difficulties in achieving its objectives. The organisation's focus was not very specific as it later emerged, and it took on health care, food security and commercial agriculture.

However, at the same time, development practitioners were changing their focus of development from one only concerned with the economic understanding of development to a more humanistic view of development. According to Davids (2005), this was the reason the Manila Declaration of People's Participation and Sustainable Development (1989) and The African Charter for Popular Participation in Development Transformation (1990) were signed and ratified at the time. This reveals a shift in development thinking that would have an effect on how agencies, especially NGOs and government, conducted their development work. The shift involved a demonstrated intention to consult people and to make use of local structures in communities. Programmes that were initiated at the time were as a result of working and engaging with people and their needs. Therefore, it is no surprise that VEDCO embraced a development route to launch its people-centred programme because the discourse around the world was changing in that direction.

Phase two (1990-1994) marked the first form of financial support for low external input support agriculture, the first major support inflow occurring in 1992. In this phase, much emphasis was placed on improved food security and health care. Specifically, VEDCO sought to carry out awareness building and support of development of agriculture extension, credit provision and commercialisation of agriculture was becoming more explicit as a goal instead of food security. The belief in increasing incomes as the way to pull poor people out of poverty towards development was becoming explicit. At the same time, VEDCO's language was changing and the farmers with whom they used to work were now being referred to as 'clientele', showing a shift in their purpose and relationship. By this time, VEDCO had expanded to cover 250 community people and it also increased the numbers of parishes it was focusing on to add Makulubita onto Nyimbwa sub-county.

Phase three (October 1996-1999) was the time when emphasis on marketing, cash crops and a need to increase household income were top of VEDCO's agenda. The programme developed at this time was the integrated people-centred agricultural improvement programme. This was mainly aimed at achieving a sustained increase in household income, through focusing on household food security and improving marketing potential. The programme areas included training and networking, agricultural extension, marketing support and rural credit finance. During this time, the programme was being implemented in seven sub-counties and three town councils serving 2,270 people in groups. The programme had changed its focus from rural to agricultural improvement to specify its focus, and the health component at this stage was dropped. With commercialisation came issues of marketing and attempts were made to promote micro-entrepreneurs and self-help groups. The focus on commercialisation had been developed over a long period, but at the same time, there was money to implement and expand their activities. By this time, VEDCO was employing 30 full-time staff and there were no volunteers as had been the case when the organisation was first established. Essentially, it had increased its capacity and coverage, which changed the role farmers played. These changes coincided with the period when the buzz-word in Ugandan politics was 'modernisation' and VEDCO followed suit. A new agricultural policy was coming into force that was going to see changes in the meaning of agriculture in the country (see chapter one). VEDCO embraced the ideals of these policies, which were similar to those of its own, even if working with government proved difficult.

Phase four (July 2000-September 2003) was concerned with expanding the focus of VEDCO's programmes to become a service provider to other organisations and to begin to exit from direct service provision to farmers. In 2000, a study by VEDCO and PLAN International to establish the socio-economic situation of farmers under PLAN was conducted and its findings became the basis for future plans. The study concluded that farmers lacked appropriate knowledge, were not skilled in business management and production, and that marketing was still challenging, among others. From this study, it emerged that 45% of households experienced periods of food shortage (Kyaddondo & Kyomuhendo, 2000). This was after VEDCO had been in Luwero for over 10 years with the same farmers working towards food security. By this time, VEDCO was serving 5,200 farmers through the capacity-building component and 1,225 on agricultural trade. The credit facilities scheme, Rural Credit Finance (RUCREF), had grown into a fully-fledged autonomous institution from VEDCO, offering rural credit to those who could afford this facility. It was during this period that VEDCO promoted the growing of cash crops that were also being promoted by government at the time, which included chillies, okra and vanilla. VEDCO became very instrumental in the marketing campaign to the international market, and in one village I visited and another where I worked, there were fields where okra, vanilla and chillies were harvested in the past. However, some farmers told me that they did not want to be reminded about the vanilla because it caused them huge losses.

As VEDCO was intensifying its focus on commercialisation, government was launching the Plan for Modernisation, which was focusing on privatising public extension services. In its reflections on 10 years of its existence and focusing on the new millennium, VEDCO (1999) expressed that its method of work would emphasise "provision of demand driven services, quality services with needs of clients ... increased specialisation in rural economic development services ..." (VEDCO, 1999, p. 7)

This is the language that would be used in the Ugandan government's Plan for Modernisation of Agriculture documents later, in which farmers would purchase extension services from VEDCO, if they wanted to modernise their agricultural activities and fields. At the same time, VEDCO was subscribing to sustainable agriculture, in which people's involvement and the environmental component were being emphasised (VEDCO, 1999).

In 2004, VEDCO developed a plan to 'consolidate' its activities with the major aim of building capacities of CBOs, especially in agricultural production and marketing. The idea of working in groups was supposed to enable farmers to produce and market in groups. The programme developed by PLAN International in partnership with VEDCO was in its final year, and aimed at building the capacities of farmers' CBOs to sustain their existence without a heavy dependence on VEDCO. Farmers were supposed to be trained in skills that would lead to a more demand-driven provision of extension services, which they would need if they were to produce for the market. At the principle level therefore, VEDCO re-invented the wheel and took people back to a point where they were after the war: receivers of things. Only this time it was 'modern' things and know-how that they were receiving and not relief. Whether it is because VEDCO has not been using information generated from farmers or whether it is something else, even with the successes that it has registered, the level of adaptation of modern methods was still low and it has a striking resemblance to the NAADS, which is a state-given service. While this resemblance would not have been a problem, the NAADS had registered many failures and, according to Oxford Policy Management (OPM) (2008), created its own target group from what it had set out to achieve. OPM (2008) explained that NAADS ended up creating its own target group of well-off farms, thereby missing the majority of farmers it has set out to help.

The changes that VEDCO has gone through were based on the situation, both within and outside VEDCO. The external factors had effects on its philosophy and practices. I will later explore whether these changes were contributing to security or insecurity of livelihoods, a primary objective of all its programmes. I will next examine the challenges faced by VEDCO in implementation of its programmes to understand their position in people's livelihoods.

4.2.9 Challenges VEDCO faced in implementation of programmes.

In the implementation of the programmes, VEDCO faced some challenges, some of which were beyond its organisational capability.

Poor / non-adoption of modern methods

During a staff meeting, extension workers were reporting that farmers were not embracing new technologies. The extension workers shared that:

We have been in the field for a while implementing programmes, but for us in our project, the things we taught farmers last season have already been forgotten. Yet we have a project that is supposed to move in phases. The farmers who are supposed to

have attained food security have not attained it. Yet we are supposed to be training them in farm business education (EW, quarterly review workshop, October 16, 2007).

What the extension worker said above was a shared challenge among extension workers. One of the other extension workers commented that:

Farmers do not know what they want. I think they are using us to try out their own things. Today, they will tell us to give them cassava, when you bring it they complain that it is not what they wanted, so they refuse to plant it. The same story goes for bananas and potatoes and other crops (Quarterly review workshop, October 16, 2008).

Other extension workers tried to explain their own situations and I commented that maybe it was because farmers felt that it was not going to meet their needs. I asked if they had ever considered asking the farmers why they did not adopt. One of managers in the organisation told field workers that:

Remember we are here because of our funders. If you find that you have the funding and farmers do not take the interventions what do you do? Do you just return the money back to them and tell them that farmers had other needs? We have to try and create need even where there is no need, if we want to survive. (Quarterly Review Workshop, October 16, 2008)

During the meeting, farmers were blamed for non-adoption of modern technologies because they did not know what they wanted. The leader's reaction to the comment made also shows how one of VEDCO's major challenges was satisfying the needs of donors. Some other challenges were internal to VEDCO, they were between staff members.

During the course of my fieldwork, the team leader was changed and some other changes also took place in the field office. For example, the team leader instituted a committee with project officers to make decisions about what was happening in the field. The team leader was concerned that VEDCO was delivering planting materials when farmers were not ready. He wanted a mechanism developed to minimise losses that the organisation had incurred because of planting materials, which farmers had failed to collect for planting. As a result, materials became rotten at the points where they were dropped off in villages. The team leader was furious and set up a committee to discuss what they would do to avoid such a loss in the future, naming it the technical committee. The technical committee developed a tool (a form) that was

supposed to be used to guide materials distribution. Before planting materials were delivered to them, farmers were required to ascertain that they were ready for the materials. But extension workers felt excluded from this process, as expressed by the following APO:

These people do not understand what is going on. They think they can just sit in the board room and decide on what to do without involving their field officers and that will work. From what you have seen, is there any farmer who will tell me that he or she is not ready to receive the materials? Those cassava stems were not delivered at the time they were supposed to be delivered because farmers were saying that there was no transport to pick them. Now they want to start blaming us for farmers' and their own failures. Those forms will never work; they are just wasting their time instead of going to farmers and finding out why planting materials were not picked. (Informal conversation, April 23, 2008)

The extension workers who were supposed to administer the forms to farmers were in total disagreement. They felt that as officers they had done their job by delivering materials to the locations they had agreed with the farmers. They felt that it was not their problem that farmers had not picked up the planting materials. More so, the form was a new instrument they were supposed to introduce to farmers in the middle of the planting season, when the organisation had been promising planting materials for two months. Another extension worker laughed, saying:

This is madness. We have been telling the farmers that the planting materials are coming for two months now. The planting season is almost at the end; people are now starting to weed. Now they want us to go to the same farmers and introduce to them a form/paper that they are supposed to read and sign. They [farmers] will think we are going crazy. Imagine someone expecting cassava stems or potato vines and you take a piece of paper for them to read and sign. That is called *byoya bya nswa* (supplying air) (Informal conversation, April 24, 2008).

To the APOs, the technical committee was a waste of time and from then on, APOs made fun of the decisions made at that level. However, because of fear of being victimised, many APOs made their comments about such things in their own space with their peers where they felt more secure to express themselves. The failure by the team leader to consult the extension workers on the actions they could take resulted in resistance from extension workers. In farmers' meetings, it was the APOs who would face angry farmers, with each side accusing the

other of 'unseriousness'. For example, one day I was scolded by an angry farmer when she heard that I was connected to VEDCO. She had waited for pigs for over five months and had paid money for cost-sharing. She had also built a shelter for the piglet, but VEDCO had not yet delivered on its promise. When I asked the PO about this, she said that sourcing piglets was delayed beyond what they had anticipated.

As much as I could understand the need to listen to farmers, I could also understand the need for the organisation to survive, as without money it would have to close down. However, VEDCO could not be called a victim of donors' demands because it had a say in what it was willing to do. Blaming the farmers for non-adaptation identified with Michelson's (1996) argument that blaming the weakest person in the chain is a characteristic of modernisation. Based on this view, Michelson explains that farmers are blamed for the failure of programmes even in cases where they are not the ones to blame.

In the next section, I will focus on the locality of study. I will first describe the local context within which VEDCO carries out its programmes. I will then examine the history of Luwero as a place that enjoys special attention from the government of Uganda. As part of its historical context and in the spirit of indigenous knowledge, I will look at the nature of life in the past, and how that has shaped the current situation, in terms of cultural changes and agriculture.

4.3 The locality of my study: an introduction

Luwero District covers a total area of 5,773.53 km², of which 5,625 km² is suitable for agriculture. It is easily accessible to and from Kampala city because it lies along a major road to the northern region (see map in chapter 1). Apart from the main highway, the road network between different parts of the district is not tarred which makes it slippery and rough during the rainy seasons. The highway has just been repaired and was completed during the time of my field work. This improved road served to reduce time spent on travelling to and from the city from roughly three hours to one and a half hours. It has also enabled traders in the city to come and buy produce from people in Luwero. The untarred roads in the district cover a distance of 398 km. According to official government statistics, Luwero district receives a mean annual rainfall of 1,250 mm and has two distinct rainy seasons, being March-June and October-December. Temperatures range between 16°C and 30°C all year round, making the weather

very suitable for agriculture (UBOS, 2002). According to the Housing and Population Census (2002), the district has a population of 479, 922 people, of whom 50.8% are female and 49.2% are male. Of these, 92% are characterised as rural-based. The major activity practised by more than 80% of the population is growing food to eat and selling the surplus. This makes the district a very good candidate for training interventions on commercial agriculture.

Like all districts in Uganda, Luwero is under the leadership of a Chief Administrative Officer who oversees the running of all district plans. It is under the CAO that the district officers operate, heading the different parts of the district's service units. There are extension workers at the district, both for crops and animals, with each sub-county having one agricultural extension worker. In a sub-county with an average of about 900 households, there was only one agricultural extension officer from the government. Yet, farmers faced innumerable challenges related to weather and soil fertility, among others (see Babikwa, 2003). In addition to these challenges, Luwero was the fighting base for the guerrilla war from 1981 to 1986, which led to many deaths, destruction of lives and livelihoods that had to be rebuilt.

4.3.1 A brief historical overview of Luwero district

Luwero district forms part of the Luwero Triangle that was the base for the guerrilla fighters from 1981 to 1986 when the then NRA won the war and took over power. Having been a fighting base, the war has influenced the resilience and risk factors that people of Luwero are currently facing. People lost their homes, their crops, their animals and their loved ones. For instance, farmers said that they used to be big coffee producers, a practice that has almost died out as coffee does not form part of their major crops. Farmers narrated some of their losses that have had a profound effect on their production of food, and their relations with people and cash crops, further endangering their livelihoods as Alice explained below:

I used to have a big banana plantation in that part [pointing to the left side of her house]. It brought me friends from Buganda and beyond, who used to come seeking work and became part of my household. I had a cassava field in the bush where we planted that plantation you see [pointing to the plot where bananas are currently growing]. We were told that we had to flee or else we would be killed because fighting was everywhere. Finally, I got my children together and we left and went further into Semuto (a village that is about 20 km from her house). By the time we got back, I looked at what had been left of the house, the fields and the plantations and wanted to cry. The cassava field and the plantation were no more. Even the yams that I used to

plant in the plantation for harsh times of hunger were all gone. The only thing we owned were the clothes we were wearing. (Informal interview, Alice, February 9, 2008)

I used to have coffee, because in Luwero we are coffee growers. When the war started we persisted and stayed, but the government forces came and ordered us out of the villages and we had to flee for our lives. By the time we came back to what had been left of our homes, we found nothing. All trading centres you see now are all newly built. We found empty houses, empty fields ... but at least we were alive and started planting crops again. (Informal interview, Simon, October 31, 2007)

The losses these farmers described not only affected their socio-cultural organisation, but also their whole livelihood systems. It destroyed their social networks and traditions that had ensured their means of survival. The process of rebuilding involved starting all over again, albeit with very few assets, which increased risk. According to Muyanja (1991, p. 10), when the war ceased, government launched a campaign to reintegrate displaced people into their communities, with much support being channelled through the government and many other relief agencies, to deal with the war's effects on the people. The amount of work involved provided a basis for organisations like VEDCO to start and give support where there were gaps. Through the then Ministry of Relief and Social Rehabilitation, the government focused on the rehabilitation programme and with the resources it received from other funding agencies, many people were reintegrated successfully. From the time the war ended and even currently, there is a Minister in Charge of the Luwero Triangle. This is an area that the government singled out as needing special attention, a factor that has enabled Luwero to become resilient and rebuild its resource base.

4.3.2 The people of Luwero

In order to understand people's agricultural activities and why they practised agriculture in a particular way, it is important to understand the historical context from which they have emerged. This would allow one to understand the enabling factors for a community's resilience against hazards related to agriculture. I will first describe the socio-political context and then examine the cultural context, paying particular attention to the quest to waive off different vulnerabilities.

Being in the central region, Luwero is part of the Buganda region (see map in section 1.2.3) (also a kingdom), inhabited mainly by the Baganda. The language spoken in this area is

predominantly Luganda, except for a few of the areas inhabited by Nubians and part of the Ugandan army in Bombo town, where the major language spoken is Swahili. In the Luwero town council there are some Banyankore (from western Uganda).

Along the way to Luwero I could not help noticing trucks carrying cassava, charcoal, sweet potatoes and pineapples heading to Kampala. Some trucks carrying bananas for sale were heading for Luwero from Kampala. As we went through trading centres and travelled further into rural Luwero along the main road, there were fresh food stalls that sold sweet potatoes, green vegetables, tomatoes, fresh maize, fresh beans, sugar cane, pineapples and other perishables. The availability of these crops was dependent on the season. Road side trader's clients or target market were travellers along the highway leading to the northern region. Selling crops to travellers fetched a higher price than they would on their local market.

There were all kinds of crops growing along the road as we went further into Luwero. There were young banana fields, some arranged in neat rows and others growing in what some people might describe as an 'unsystematic and disorganised way'. Most of the other crops grow in this 'disorganised' manner except for one field along the way marked 'FICCA Seeds' on which maize is growing. There are beans, mango trees, paw paws, maize fields, sweet potatoes and cassava.

4.3.3 The people's culture: the Ganda culture

The Baganda are culturally organised into 52 clans which are officially recognised by their kingdom, the Buganda Kingdom. Clan members believe that they are brothers and sisters or share a common ancestry even if they are not related by blood. Members of the same clan are not supposed to marry each other, as this would be committing incest. Clans are organised under clan heads who are handed power by their clans, and represent those under them in all matters pertaining to the kingdom. The Baganda are organised in a hierarchical structure with a king called "Kabaka" at the top and his cabinet following, with each clan represented. These used to be the structures through which the Kabaka exercised his political power, but now play the part of organising people for cultural matters only. Unofficially though, the king of Buganda is a silent power in the community and his subjects still respect and listen to his authority. This same authority filters into the structures in the community. Rooted in the Ganda culture is the fundamental belief that a king was not to govern hungry subjects and that the power to produce food was each individual's responsibility to have sufficient food for his/her family.

The Baganda have a long standing tradition rooted in agriculture, with their kings, clan heads and chiefs holding the purpose of ensuring that all their people had food, as explained by one farmer, Simon:

The king through the structures, the sub-county, parish and the county, ensured that every household had three fields by law. One would be for the king, the other for the county and the other for the household, but in fact crops from all fields were consumed by members of such a household. One of the plantations was for matooke (bananas). The parish chiefs made sure that all the people complied and had these three fields but all the food from these fields was consumed by the household. When the Saza chiefs visited the people of a particular place, members of that community would give some matooke to create and maintain a relationship ... (Interview, Simon, January 29, 2008)

Having farmers own three fields of different crops enabled food security at the household level. But more importantly, food security was institutionalised and the cultural leaders took on the responsibility of making sure that each household complied. Even when they started producing coffee, the three fields were separated from cash cropping fields.

4.3.4 Bananas and life: a symbiotic relationship between the Baganda and bananas

The Baganda had and still have an intimate relationship with their crops, partly because the crops had a cultural significance, and also because they cherished having enough food. Among the crops that are culturally significant are bananas, locally known as matooke. There is no cultural function in Buganda that is complete without the presentation of bananas. According to respondents, bananas were used to make and maintain friendships and acquaintances, and to build homes and families. More so, in Uganda for different tribes that interact with the Baganda, the word *emmere* means 'food', but for the Buganda, the word *emmere* means 'bananas'. When someone says 'tetulina mere' (we do not have food), most of the time it means they do not have bananas. To demonstrate the Baganda's relationship with bananas, I present a collective story that emerged from farmers' responses:

In Buganda we always had two types of bananas, *nakitembe* and *mbidde*. *Nakitembe* was for providing food, while *mbidde* was for providing banana juice and was also used in making local beer. They were the most important types of bananas. These days it is luck to get these types of bananas, because all people want is food so they plant *kisansa*, *mpologoma* and *FIA* [improved varieties of bananas].

But those days, when a woman gave birth to a second born and it was a baby girl, the placenta was taken and put in the soil where the nakitembe grew to keep it producing bananas to be eaten by the family. The placenta was treasured and would be buried and hidden away so that it was not eaten by dogs. The bananas were eaten by the grandparents and the girl when she grew up. We would dig and cover it with remains of bananas so that dogs would not steal it and eat it.

If the second born was a boy, the placenta was buried in the mbidde so that it would produce beer for the children who have planted it and their grandparents. So every household, near their house, had these two types of bananas that were part of the homestead' (January 23, 2008).

When a woman gave birth, the first food she was given with green leaves was matooke. There was a belief that cassava was so hard for her stomach and that sweet potatoes would make her become too dry to produce breast milk to feed her baby. Bananas were considered food for children with pumpkin and ground nut sauce.

The same type of bananas, nakitembe, was the banana that would be given to a bride-to-be by her paternal auntie to cook for the man as the first meal that she served her husband. When the bride went to live with her husband, the first meal that she made was bananas. If she knew how to peel bananas well, sitting properly, cover them with all the right covers, it would be assumed that she would make a good wife. On the dishes that the groom was served there would be bananas among other items. And when a suitor came to introduce his family to a girl's family, to ask for her hand in marriage, he had to produce a gourd of beer to the family. (January 23, 2008)

In Buganda we have a saying that 'Oluganda kulya, olugend' enjala teludda', literally meaning 'relations are about eating, a visitor/acquaintance who goes out of your house hungry, never returns'. So when one went visiting, they would be fed on bananas as a delicacy, they would be given bunches of bananas to go with so that they would not get hungry when they returned home. This exchange would ensure the continuity of such an acquaintance. (Discussion, January 29, 2008)

Currently it is not possible to give each visitor a bunch of bananas to take home and cook, but most of the households I visited gave me different items to take away with me, thereby keeping

this customary practice alive. I was given tomatoes, eggs, eggplants, potatoes, cassava, a bunch of bananas, and many other food items to take back home.

Some farmers explained to me the care they took to make sure that their fields of crops were well looked after:

We were not supposed to dig in a banana field with hoes [hand-held hoes]. We were only supposed to use our hands to clear weeds, lest we cut the roots that held plants, which would kill them. We mulched, we weeded and took pride in how our fields looked. Having a field covered in weeds was not acceptable. Even the authorities came to your household to check what was going on if your field looked unattended. It was easy to take care of banana fields then, because weeds were fewer since we mulched. These days all people care about is money and food. As long as they get those two they do not mind what their fields look like. (Interview, Alice, Peace, January 29, 2008).

This vivid description not only serves to show a group of people passionate about what they did, but also illustrates people's lives within a cultural context that made their lives more meaningful. Changes in the cultural context have not only changed people's way of life, but have also altered the very basis of it. In the next chapter, I will examine the implications that such changes have had on the risk environment, especially regarding food security in relation to the current policy environment.

Having introduced the study area and the people in that area, I will now provide a description of the life of people in the study area. I will first give a description of life in general in the two villages and then focus on the specific farmer groups and their leaders. I will describe the group leaders (RDEs), because they were the examples of success that VEDCO used to teach other farmers.

4.3.5 Life in Sambwe and Kasaala

I worked in two parishes, Sambwe and Kasaala, which were approximately 25 km apart. I will describe the villages and later describe the groups with whom I worked for the period that I was in the field. These descriptions will enable me to present the unique features of the two villages, because such features fed into the risks that each part of the district experienced differently. Along with the villages and groups, I will also give a brief description of RDEs and their activities.

4.3.5.1 Sambwe

Sambwe is approximately 8 km from the main road in Bombo town. Motorbikes are the major form of transport used by people in Kasaala and Sambwe to move within their villages. Sambwe has two untarred roads from which it could be accessed. The nearest road to gain access to and from the village cut across two swamps which made it impassable during the rainy seasons when the levels of water rose. Residents of Sambwe used an alternative route but this meant paying higher transport costs. From a distance, it looks like a village covered by tall green trees, but when you get into the village, you find homes that are on average one kilometre apart. As you climb up the hill into Sambwe, you see a boarding school which serves children from within and outside Sambwe. None of the farmers with whom I worked had children enrolled there because it was too costly. Most of their children attended a government-aided primary school which was under the Universal Primary Education (UPE) scheme. The one side of the hill was populated predominantly by Christians, while on the other side there were predominantly Muslims. When a person became sick, they were taken to the nearest health facility, which was a clinic in Bombo town.

Along the way and on farms I visited, there were crops such as maize, cassava, sweet potatoes, bananas, coffee, groundnuts, beans and vegetables, depending on the season. They were all grown in somewhat similar ways, which were not modern like those promoted by VEDCO. A VEDCO staff member confirmed this, saying:

VEDCO has been working in this village for more than 10 years, but how come I do not see any fields along the road that look like the ones at Kikoma [the field office]? It is as if we [VEDCO] have never been to this place at all ... where are the bananas, kitchen gardens ... such things?' (Informal conversation, October 30, 2007)

The comment by the staff from VEDCO shows the picture one got when one travelled through Luwero. Most of the fields by farmers were planted using their own local knowledge and methods. This is not to say that VEDCO had done nothing in Luwero, but to highlight its presence in the field judged by the number of farms, which have applied modern knowledge. In the next sub-section, I will describe the groups and their RDEs to offer a picture of what activities groups carried out and how active they were.

4.3.5.1.1 The farmer groups and their RDEs

As much as it is important to understand individual farmers and their strategies, it would be inappropriate for me to introduce each one on his/her own because they operated in a wider unit (their group) for all matters pertaining to VEDCO. I will therefore introduce the leaders and their groups as the structure that organised farmers to engage in modern farming.

I worked with two groups in Sambwe, each comprising 25 members, but I sampled 10 members in each group. I made this decision because not all members who had registered were active in the group. While the group had 25 registered members, in most cases half of those or less, were active in group activities. Two women, Karono and Keziah, headed the two groups with whom I worked, but Keziah left the village during the course of the study and moved elsewhere and a man replaced her.

The first group were involved in vegetable farming. At the time of this study, members of this group had a vegetable field that they were preparing to harvest for sale. One of the group members had donated land, which they used to plant the vegetables. They all participated in the labour demands on the field every Wednesday when they met. During the dry season, their vegetables could not withstand the sunshine and dried up. They lost their whole harvest for that season after they had put a lot of time and money into it.

In the second group, there were 23 members and the RDE was female. Members of this group tended to meet when there were some materials to share or when they had a meeting. They did not have any group field, and were constructing a chicken house by the time I left the field. They had been promised chicks by the NAADS. I noticed that part of their strategy was to get materials from different providers as long as these were given free. They received any materials from any organisation that were given to farmers organised in groups. VEDCO gave this group banana suckers to plant for food security.

4.3.5.1.2 Karono

She is married and her youngest two children are at university in the city. She and her husband usually work on the same field. He has his own banana field near the house, and belongs to another VEDCO group. He refers to all the banana fields that have come through VEDCO and are owned by the wife's group, as hers. But when there was training in banana management, he was the one who was directing the training and giving his insights on how to grow bananas. Karono also has chickens that she obtained through cost-sharing with VEDCO; her husband helped her build a chicken house. Karono enjoyed much support from her husband, Ismael,

who made sure that she remembered all trainings and attended all required meetings. When they wanted to sell crops from a particular field, they were both present. Moreover, if buyers came in his wife's absence, Ismael would tell them to come back when she was around. Ismael always said he could not sell what was not his.

4.3.5.1.3 Keziah

Keziah is a 40-year-old single mother. She has been an RDE in VEDCO for more than eight years and has a banana field, a cassava field and sweet potatoes. Keziah's fields were for providing food for her children, but she said that when there was more than what her family needs, she sold the surplus. She also rears chickens that VEDCO gave to her group; she hosted the chicks and other farmers got chicks from her brooder. She did not own any land in Sambwe. Keziah stayed and cultivated on her brother's land until her brother sold it and she had to move to her parents' home about 40 km from Sambwe. All her fields, apart from 50 banana suckers, were planted according to her own knowledge. When I asked her why, she said that she had got the young banana suckers from VEDCO and was following their measurements because they were delicate. However, she did not dig the holes deep enough and left less space between plants than what was required. I later discovered that she is a member of another farmers' group also supported by VEDCO in the same village. When I asked her about this, she said:

I have time to attend to both groups and besides, the materials they give them are different so if I get some from one group I can get others from another group. VEDCO has no rule against that as long as the farmer has the time. (Informal conversation, January 21, 2008)

Keziah explained that she enrolled in two groups because they each brought different benefits. When she moved from her village, she kept coming back to Sambwe because VEDCO was not reaching the place where she had moved. She built a chicken house at a friend's who agreed to keep her chickens for her until they matured. She had to abandon her young plants, bananas and some vegetables which she had planted before she left. Her move to another village disrupted her livelihood.

4.3.5.2 Kasaala

Kasaala is along the highway, approximately 10 km from Luwero town council and most of its social services are at the town council. I worked in Kitegombwa and Kasaala villages which

were 7 km apart and both in the same parish. Kitegombwa is slightly off the highway while Kasaala is along the highway and thus was a bit more urbanised. Kasaala had shops and people were involved in small businesses. It also hosted the weekly market and on market day there was much activity with people getting drunk and farmers putting off some of their work to shop. Between the two villages, there were four schools: three church-founded government schools and one private one in the trading centre. For people who fell ill, the nearest government health facility for both villages was the health centre at the town council, which people accessed using motorbikes and bicycles. This transport system posed a challenge for patients who were too weak to sit on motorbikes. There were three churches in the villages, one catholic and the other two protestant (Anglican).

4.3.5.2.1 The groups and their RDEs

In Kasaala I worked with two groups, both headed by male RDEs. Headed by Peter, the first group was a registered Community Based Association (CBA) with its own structure and chairperson. Registration as a CBA was in line with VEDCO's programme efforts to build capacity of CBOs and to have them registered. With registration, such farmers would be able to fundraise and cease depending on VEDCO. Members of this group met regularly, especially when planting materials were received from the organisation. I attended two of their meetings that were held every Sunday afternoon at the RDE's home. This group had a joint field of bananas and during my fieldwork, some farmers came to take banana suckers from it to plant in their own field. However, management and upkeep of the plantation was the responsibility of the RDE. This group had many of its members involved in farming for sale; they had fields with maize, coffee, sweet potatoes, cassava, bananas, vegetables, groundnuts, onions, Irish potatoes and beans that they had dedicated for sale. Their location in the urbanised part of the village affected the crops they planted and how they planted them. Most farmers in this village who took part in this study had small pieces of land compared to those in the rural setting.

The second group had 25 members but only 15 were active, only one of which was male. They had two demonstration fields, which were hosted by James, their RDE. Five other farmers had fields on which they planted different crops which VEDCO had given them. This group only met once in a while when they had an activity to plan for. I attended two of their meetings and one training event. James had many fields and engaged in agriculture so that he would sell crops to earn money. The rest of his group members were only engaged in farming for food and two of those I worked with also owned animals.

4.3.5.2.2 Peter

Peter had fields of bananas, cassava and maize, which he looked after and were for sale. He also had chickens that he was rearing for eggs to sell. Part of a house he was completing was rented out to two tenants. His wife was in his group, and he had children of school-going age. Peter said he was in his 40s, but would not say his age because he said he was too old to tell his age. He did not say how many children he had and we agreed that I would not count them because it was against his culture. But his last born was in kindergarten and most of those at home were in a day primary school in the village. Behind his house were two graves, one of which was for his child who had passed away the previous year due to malaria. His bananas were planted in a modern way, but there was a field of bananas behind his main house where he had a banana field that he said was his wife's for growing food for his family. He also had some coffee plants intercropped with local bananas. Next to his banana field was a potato field of orange fleshed potatoes (OFPs) distributed by VEDCO, from which farmers were supposed to be taking vines for planting. He indicated that none of the farmers had taken vines to plant. When I asked why, his wife said:

Most of the people do not want to eat kipapali [the orange fleshed potatoes, the name having been derived from pawpaw because of its colour] because they are very sweet. They have got too much sugar. Children are the only ones in my house who try and eat them. When they [potatoes] are finished in the field, that will be their end, even for us. We made the demonstration field for people to come and take the vines and plant, but no one had come to take any so am just harvesting and eating what we can and we see what happens. (Informal interview, Becky, January 29, 2008)

Peter had plans to expand his modern banana field when the orange fleshed potatoes were harvested. At the borders of his land, next to his maize field, was a field which he had given to his wife for her to plant her own crops. He told me later that he was in another group that had rented land, a long distance from his own home. He said the members of that group were only progressive farmers like him and they pooled money to plant maize for sale. Peter was a very enthusiastic farmer. He was willing to learn, attended all meetings and trainings and received great extension support. Every time the extension worker visited this village, Peter's home was the first stop.

4.3.5.2.3 James

James is known as the young commercial agricultural farmer in his village and in other neighbouring villages. He was already farming when VEDCO started working in his village in 2006. Before then, he had been in a NAADS-supported group and he said that he has been farming for income since he was a young man. James was in his 30s and has a wife with a baby. He had fields near his home and his house was in the middle of a coffee field. He had pineapples, bananas (which he was still expanding), vegetables (that his mother had planted), and cassava. His wife spent a good deal of time at home with the baby and only tended plants near her house which were grown for food. He is soft spoken and in meetings where there were older people, whenever he answered his sentences he began with 'I don't know .' When we went around the village, many of the older people called him mwana wange, which means 'my child'. He did not stand out, but when I got to his field, I was surprised that he knew much more than he was credited for. In his group he was the dominating and only active male who responded positively when the extension worker asked for anything. He was in the process of expanding his banana field and had requested banana suckers from VEDCO on a cost-sharing arrangement. James said that land was not his problem as his family had enough land, which enabled him to expand his field if he could secure the materials needed. He usually requested all planting materials that came from VEDCO and was willing to cost-share with the organisation for crops that went into his modern field. Food was the responsibility of his wife and his mother and they worked on the food fields together most of the time. Farmers in his group were free to take planting materials when available, especially banana suckers, from the groups' demonstration field.

A closer analysis of the RDEs shows that they were not helpless poor people in their respective villages, as they had some assets and resources to appropriate for different demands. For instance, among the four RDEs, only Keziah did not own the land on which she planted her crops. They were all considered progressive farmers because they were able to put knowledge learnt from VEDCO into practice. However, it was difficult to say that they were categorised as progressive because of their own abilities or because of the knowledge they had acquired from VEDCO only. RDE's resources seemed to determine what knowledge farmers put into use. For example, Keziah had attended all trainings and was eager to practise what she had learnt but was limited by lack of land. This made the circumstances RDEs significant for analysis later, given that they were the measure of success as far as adaptation of modernised farming practices was concerned.

4.3.5.3 Economic well-being of farmers

There are widely held views about what is important to farmers, in relation to income and livelihoods security. Modernisation proponents argue that when you increase incomes first, people's livelihoods will be secure (see Youngman, 2000). The proponents of the people-centered development approaches, like the livelihoods approach, argue that poor people's lives cannot be confined to income only, they have to be understood holistically (See Chambers, 1983). VEDCO extended agricultural services to improve farmers' incomes and in turn increase livelihoods security. Before discussing the other aspects of farmers' livelihoods, I will start by presenting a summary of what farmers in my study needed income for, and also see if the incomes they were earning through their different strategies were able to secure their livelihoods. Securing livelihoods in this case would mean, enabling farmers to have money to spend on the basics and remain with some extra cash to cater for any eventualities. I requested farmers to map their spending and cash flow patterns for two months. This would enable me to determine if they were saving or reinvesting for unexpected events. Below I present a sample of expenditure-income patterns from two households from two different villages. The only marked difference was that the family in Kasaala was seen by other people and VEDCO as a model family and well off, while the one in Sambwe was characterised as poor. However, even as a model family, not all expenses were met.

Table 0 A two-month income and expenditure pattern of a household, Sambwe (1 adult, six school going children)

Income	Amount (Ug Shs)	Expenditure	Amount (Ug Shs)
Chickens	120,000	School expenses	60,000
Eggs	60,000	Chicken expenses	75,000
Bananas	5,000	Paraffin	4,000
		Medication	10,000
		Transport	40,000
		Soap	3,000
		Salt	1,000
Total	180,500		193,000

Note: There was a deficit of Shs.12,500

Table 0-1: A two-month income and expenditure pattern of a household, Kasala (2 adults, six children)

Income	Amount (Ug shs)	Expenditure	Amount (Ug Shs)
Chickens	200,000	School expenses	200,000
Eggs	40,000	Paraffin	5,000
Bananas	15,000	Labour	80,000
Maize	100,000	Chicken expenses	120,000
Coffee	50,000	Medication	40,000
Vegetables	5,000	Transport	50,000
Cassava	70,000	Soap	2,000
Rent	40,000	Salt	1000
		Sugar	7,500
		Planting seeds	10,000
		Clothes	10,000
Total	520,000		525,500

Note: The deficit was Shs. 5,500

Even if not representative of all families with whom I worked, the table above gives a picture of what farmers needed money for. The first farmer lived on rented land, paid food in exchange for rent and relied on her friends to help her till the land. The second household had different fields with different crops which needed a lot of labour to manage, so their expenses were high on labour. In the agricultural calendar of this field work, poultry feed costs increased and so did the prices for planting seeds, which in turn affected the whole household income. What made a difference, from my observation, was that the second farmer received most of his pay in bulk which enabled him to pay back debts easily and purchase what he needed. When he could not pay the full amount for poultry feeds, he got them on credit from his friends whom he would repay later. However, the first farmer received most of her pay in small instalments, which did not allow her to buy chicken feed in bulk, for example. Measured against the yardstick of resilience, the patterns show that the expenses in both households outweighed the incomes. Therefore, considering the income aspect alone, both households were at risk.

4.3.5.3.1 Access to land

Land was a primary need for farming and the nature of ownership mostly dictated what a farmer could or could not plant on a piece of land. The table below shows the nature of land ownership among farmers in the two villages.

Table 0-2: Nature of land ownership among farmers

By title hold	Rented land	Mailo
Kasaala		
8	5	5
Sambwe		
7	6	5

The table (4-III) shows that there were three ways of land ownership and access to land. The first way of owning land was by title hold, where a person was legally registered as the owner of the land. The second was by renting land where farmers hired out land from other people in the village to carry out their activities, and paid in either kind or in cash. The third was mailo land ownership, which was for people who were occupying land for a period but did not have ownership as it belonged to others. This lack of land rights left farmers without any rights to claim ownership of such land and during this fieldwork farmers were facing eviction because the rightful owners⁴ had returned. Sometimes claimants were fraudsters and the occupants of the land would find themselves paying for land more than once to keep their homes.

Table 0-3: Ownership of land by size

Size	No. of farmers (N=36)
<1 acre	4
>1 acre < 3 acres	7
3 acres < 5 acres	17
5 acres and above	8
Total	36

Of the 36 farmers who were part of the sample for this study, 28 farmers owned less than 5 acres of land. This had implications for practicing modern agriculture because VEDCO required its farmers to have more than five acres to good returns on their investment. Based on VEDCO's criteria 77.7% of the farmers would not qualify to engage in commercial agriculture and yet they were in groups that were being trained for this purpose. From the outset then, this spelt out a contradiction between what farmers were capable of and what the organisation wanted them to do. I will pick up this contradiction for discussion later in this chapter.

I have discussed ownership of land by gender, because the women involved in this study never acknowledged ownership of any land. Even single parents and widows referred to their own

⁴ When Buganda was still a kingdom, the king used to reward his loyal subjects with big chunks of land measured in miles, now referred to as 'mailo land'. Under such arrangement, all people who occupied the land when it was given away automatically became tenants to the owner and therefore paid a fee to him as rent each month.

land as *ttaka ly'abaana*, (the children's land). For female farmers who were married, the land belonged to their husbands. Women therefore only had access to land and believed that they were custodians of their children's land. I will engage with this imbalance later in the chapter.

The data on economic well-being of farmers shows that they were at a high risk of not having or not producing sufficiently because many farmers did not own land. Furthermore, the economic situation of farmers shows that they needed income. The question to be asked at this stage would be whether the extension knowledge farmers got was able to meet the two needs. But first of all, I needed to do a livelihoods analysis to be able to arrive at some of these answers, the first being an examination of the agricultural activities of farmers.

4.4 Agricultural activities

The following section gives a description of farmers' activities. The farmers with whom I worked were involved in different activities, but all of them were involved in crop production. These included: cassava, sweet potatoes, bananas, maize, beans, groundnuts, peas, tomatoes, vegetables, mangoes, jack fruit and pineapples. Mangoes, jack fruit and some vegetables were highly dependent on the season since they grew wildly. Other crops were planted and managed by farmers. Crops that farmers grew were most of the time dependent on the land they had available and the nature of ownership of land a farmer held.

Some farmers were involved in rearing animals, some of which were under VEDCO's programme while others were private ventures. Animals kept by farmers included cows, pigs and chicken. Seventeen of the 36 farmers owned animals. From observation and group discussions, farmers revealed that animals were sold when they needed money and there was no crops to sell.

In addition to agricultural activities, men were involved in casual labour, like brick laying in one of the villages. In Sambwe, when rains started, men abandoned the growing of crops for two weeks and went into the wetlands to look for clay to make bricks for sale. Those who could not afford to get a group to work together to make bricks would work as casual labourers for others who owned pieces of land where clay was mined. Brick making is a labour-intensive activity which required strong young men. Some fathers went for this activity with their sons. Farmers' activities farmers demonstrated a high degree of diversification, not only of food crops but also of risks.

The management of farming activities and casual labour activities was influenced by the season. Below I will now present seasonal activity charts of farmers as constructed by them. I have produced one seasonality chart to represent all villages because in their construction, there was only one difference among the groups, and this pertained to the farmers who went to make bricks during the rainy season.

Table 0-4 Combined seasonality chart for all farmers

Season	Activity	Crops
Oct-Nov	Weeding	Beans, peas, banana suckers
	Planting some late crops	Banana suckers, maize
Dec	Harvesting	Maize, mangoes, beans, bananas, sweet potatoes, cassava
	Selling of produce	Sweet potatoes, cassava, maize
	Putting away seeds	Beans, Maize
Jan-Feb	Intense land preparation (cutting bushes, older fields dug up, new fields sought)	Maize, sweet potatoes, beans, cassava
	Buying/looking for seeds/planting materials	Cassava, beans
	Early planting (wetlands)	Maize, cassava
	Weeding	Bananas, cassava, sweet potatoes
	Early harvesting	Sweet potatoes, jack fruit
Mar-Apr	Planting of crops	Beans, maize, peas, ground nuts, bananas, pineapples
	Harvesting	Sweet potatoes, bananas, fresh beans
	Weeding	Bananas, beans, maize, cassava
	Intense/repeated weeding	Bananas, cassava, maize
	Making clay bricks	
May-Jun	Intensive weeding	Beans, sweet potatoes, groundnuts, maize, cassava
	Planting	Beans, bananas, maize, sweet potatoes
	Harvesting	Beans, maize, cassava, mangoes, bananas, Sweet potatoes
	Clearing for planting	Beans, maize, cassava
July-Aug	Harvesting	Beans (fresh, dry) Sweet potatoes, tomatoes, cassava, coffee
	Early planting	Cassava, maize, beans
	Weeding/Intensive weeding	Maize, beans, cassava, bananas

The months are grouped in pairs to depict the continuity of activities in the farming calendar, because their activities were not limited to a single month. The major crops grown by farmers

owing to the number of times they appeared in the activity charts were cassava, sweet potatoes, beans, maize and bananas. Of these crops, cassava, maize and bananas were the only crops that had fields which were devoted to cash crops, and the rest were for both eating and selling. The continuous farm activities, whether in or out of season, were dictated by the focus on having food to eat, and money to meet their needs all the time. (I will examine this later in the chapter). The care and activities that were given to these crops also differed in that those which were for cash were looked after according to the procedures given by extension workers. I will present the activities they carried out for cash crops so that we understand how VEDCO tailored its programmes to fit into these activities.

Table 0-5: Seasonal activity chart for cash crops

Season	Crop	Activity
Oct-Nov	Maize	Intensive weeding (thrice a month on average) Planting
	Bananas	Harvesting, selling
Dec	Maize	Harvesting, selling
	Cassava	Harvesting, selling
Jan-Feb	Maize	Intense land preparation, cutting shrubs down, finding new fertile land, buying planting seeds, early planting (wetlands)
	Bananas	Intense weeding, cutting mulch
	Cassava	Weeding, early planting, buying stems to plant, intense land preparation for the new crop
Mar-Apr	Maize	Planting (more than 2 hectares), weeding
	Bananas	Buying suckers, planting suckers, looking for manure, cutting mulch and covering up the fields, harvesting, selling, intense weeding (recurring weeds)
	Cassava	Recurrent weeds – weeding repeatedly on the same field
May-Jun	Maize	Intensive weeding, planting, harvesting, clearing fields for planting, preparing the fields from which they have got the harvest
	Cassava	Intensive/repeated weeding, harvesting and selling, clearing fields for planting
	Bananas	Intensive weeding the same field repeatedly, planting, harvesting, and selling
Jun-Aug	Maize	Early planting, weeding the fields
	Bananas	Weeding, intensive weeding
	Cassava	Harvesting, early planting, weeding repeatedly on the same farm

Cash crop fields tended to be bigger than food-only fields, because for a farmer to join farmers who were involved in commercial activities, they had to have five acres of land and more. VEDCO's assumption was that if farmers had bigger fields, they would be able to break even and make some profits in business. From this table, weeding stood out as a major activity that farmers had to be engaged in on a monthly basis, thereby raising the costs of labour. When this cost is measured against the amount of land occupied by one field, it becomes clear that the volume of work cannot not be underestimated. Yet this was not the only type of work farmers had to attend to. As we see from the above table, all cash crops had their demands. Farmers who managed to meet the criteria for commercial farming, including the activities that it involved, were the ones who planted cash crops.

According to the VEDCO/PLAN project document (VEDCO, 2007), farmers were supposed to be organised into groups and then choose an enterprise, for which they would be provided extension support. The document review revealed that VEDCO had carried out an analysis before the beginning of the project (2000). Findings of the analysis suggested that food security was a major need for farmers so VEDCO decided to train them in management of three crops for household food security: bananas, cassava and sweet potatoes (Kyomuhendo & Kyaddondo, 2000). As part of the food security programme, orange fleshed potatoes were introduced because they had a high nutritional value, especially Vitamin A. VEDCO's view at the time of this study was that most groups had already achieved food security and were now going into the second phase of the project which was farming as a business. However, farmers' expenditure patterns show, and other findings will demonstrate, that there was still much food insecurity in a number of households. However, lack of food did not necessarily mean that farmers were not engaging in minor business. Their intentions were broader than VEDCO's intentions as I will discuss in the next chapter.

In chapter two, I explained that I would be employing a theoretical framework which is based on an understanding of risk that takes into account the resilience, hazard and vulnerability of a whole livelihood system. In this framework, the risk environment is understood to mean the ability of a system to draw on any available resources to keep a calamity/hazard at bay or to recover from the effects of that hazard. At all levels – individual, group and community – there was much effort by each member that went into ensuring resilience of that entity. As part of their lives and activities, farmers encountered hazards that drove them into periods of stress. Below, I present an illustration of hazards that farmers repeatedly had to deal with as part of

their daily activities. Sometimes such hazards escalated in particular seasons, causing the household or family to crumble under the pressure to secure its members. A summary of all hazards, presented season by season, will be unpacked immediately after presenting a composite illustration of the hazards.

4.5 Hazards faced by farmers

The following illustration gives a visual presentation of different types of hazards that farmers faced. This will be followed by accounts of how some farmers experienced and dealt with such hazards.

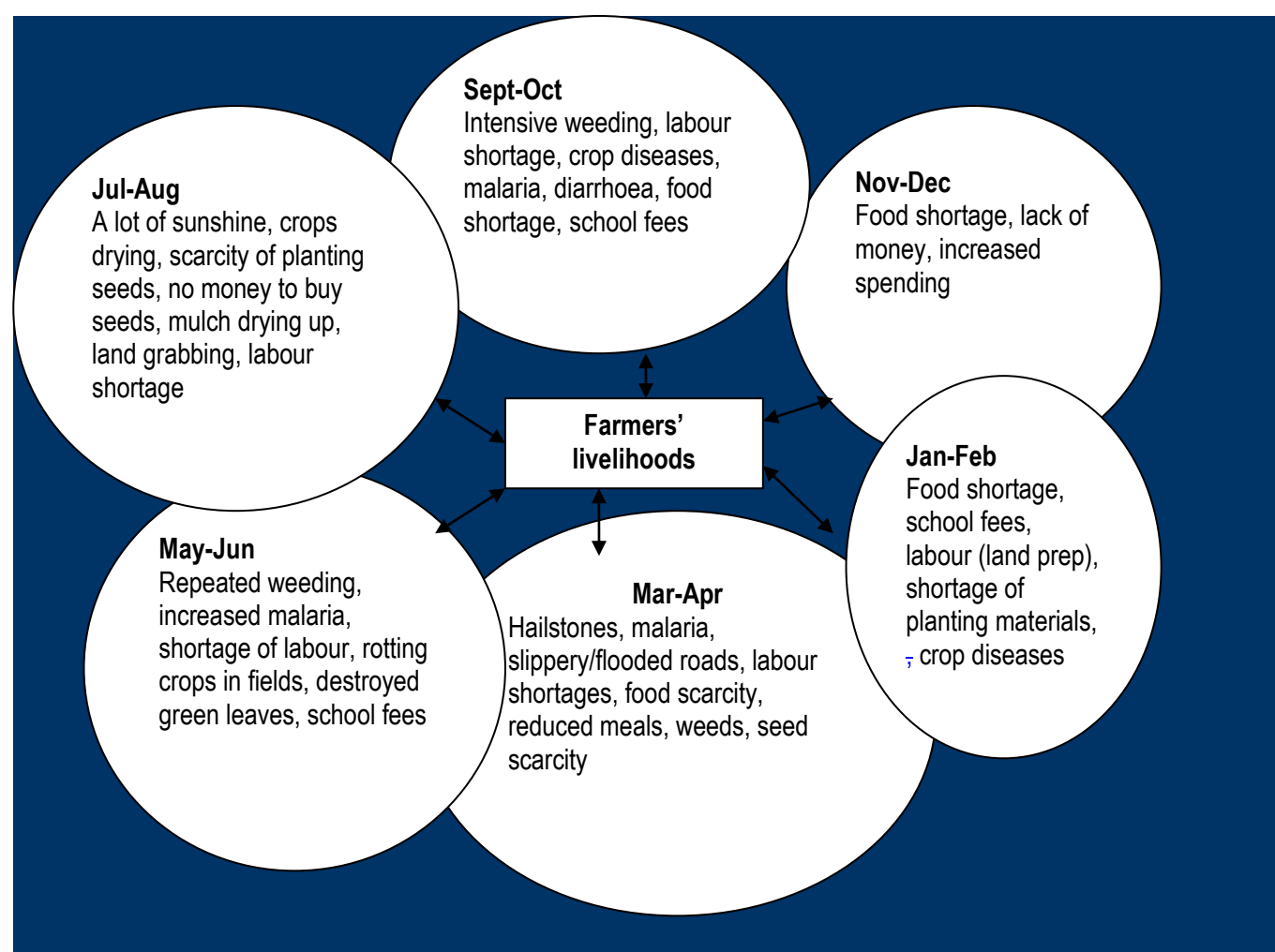


Figure 4.3.5.3-1: Mapping hazards faced by farmers over an agricultural year

The above figure provides a summary of hazards farmers found themselves facing over one agricultural year, which I will unpack in the following section. Most hazards affecting farmers' fields were caused by dysfunctional structural support systems and other external factors which farmers could not control. I will now give a detailed account of farmers' experiences with some

of the most serious hazards. I will discuss the hazards by giving a detailed description of what happened during different seasons.

4.5.1 Hazards in the rainy season

The rainy season was a much anticipated time for farmers. It heralded a time for planting new crops and the resurrection of emaciated-looking bananas. This was a time when fields were covered in green and everyone became very busy, as indicated by farmers:

As soon as the first rains hit the ground, for us farmers it is time to work. We might not sleep at night thinking of what we shall do the next day. And every time it rains, you quietly thank God and then get up to do your part. Many times people are gone from dawn to dusk to work in their fields because we are not sure anymore about the weather. The rains might stop and we would want to be done when it stops. Like the saying goes that '*ategg'ogumu teyebakka*' (meaning 'he who sets one trap does not go to sleep'). Agriculture is our life, so when it rains we are up chasing our life. (Group discussion, March 15, 2008)

For us farmers, when it starts raining, there is no resting or sleeping. There is no time to waste because we are not sure whether the rain is going to continue or stop. We have to chase the rain and make sure that we plant when the ground is still soft or else with the unpredictable weather, it might decide to stop sooner than we expect it to. And if we have not planted then that season will be gone. (Informal interview, Kityo, March 25, 2008)

What the farmers explained above shows the uncertainty involved in rain-fed agriculture. Farmers understood that agriculture was the axis of their life, and thus keenly followed the seasonal changes. Farmers did not get involved in farming without knowing the risks involved. From the discussions, they were aware of the risky nature of agriculture, as they expressed that:

These days, farming has become a complete gamble especially because of the weather. For me, I decide to plant anytime I see rain because I can never know what is going to come tomorrow or the day after that. For example, there are people who planted a few weeks ago when the soil was like sand and could not hold anything, but rain has come unexpectedly and they are going to reap big in the near future. (Group discussion, October 1, 2008)

Being busy was dictated by the uncertainty of weather because farmers could not predict how long the rains would last. Therefore, they did their best, especially with planting so as not to miss the season. At the same time, there was a lot of green everywhere, so farmers found it easy to pick leaves and cook them. Farmers picked wild leafy vegetables, because during the same rainy season, demand for seeds rose. Farmers needed seeds to plant and others to eat and yet they had no reserves to draw from. Picking herbs and vegetables increased their ability to defend their households against hunger. With rains, alongside weeds came multiple hazards, which in most cases increased stress on farmers' livelihoods. I will now engage with other hazards that put farmers' livelihood systems at risk.

4.5.1.1 Hailstones

During their training, farmers had expressed that one of the things they feared most was hailstones and as the rain intensified, their fears were confirmed. One evening, farmers watched as their fields succumbed to an inevitable natural event, as described by Kirya below.

Later in March, villages suffered their worst nightmare: crops were hit by muzira (wind and hailstones) and the worst affected crops were young maize, young bananas and cassava. Some crops fell to the ground, especially the bananas and maize. All the other crops which had leaves were reduced to small pieces. Bananas which could not be harvested after the hailstones, were left to grow the way they were, but they could not be sold in future. Farmers' helplessness after the hailstones was revealed in the following comments of farmers:

You come and take a look at my bananas... the young ones that were just beginning to grow ... all the banana leaves are in pieces. With these hailstones, I know I will not be able to get the money I had anticipated. I have already written off that one. This time the hailstones were very strong. If you look at the maize and cassava fields, I do not even know what to say. (Informal conversation, Kirya, March 6, 2008)

I had planted bigger fields hoping for a better harvest and the rains had not been so bad this time, but now the hailstones set me back a lot. My cassava plants as you saw have been cut down because they all fell down. The banana leaves are all in pieces so I cannot expect any sizeable bunch from any of them. Those which were already grown are going to end up with very bad spots and no buyer will take a bunch of

bananas that has dark spots. This season things are going to be bad. (Informal conversation, Kato, March 7, 2008)

Our worst nightmare is hailstones. There is no warning, there is no escape and every field, be it bananas, maize, or cassava, the young or old ones, are destroyed by hailstones. Even if we always know that it will come over the rainy season, we cannot know or predict the damage it will cause. (Group discussion, March 15, 2008)

The hailstones destroyed crops that were supposed to make up a whole season's harvest. The farmers' situations were worsened by their helplessness towards the destruction caused by hailstones. Unfortunately, their only option was to find their own ways of recovering from the effects of hailstones, further plunging them into risk.

4.5.1.2 Increased weed prevalence

As rains continued, planting was also taking place, but another demanding task was getting underway. The rains did not only stimulate useful green leaves for food, but they also stimulated a multiplicity of weeds that farmers would have to remove. Weeding proved to be very challenging, and overwhelming in some cases. While constructing their seasonality calendar, farmers expressed that weeding was a continuous activity throughout the seasons. However, in the rainy season, every field that had growing plants needed weeding and yet that was not the only activity demanding farmers' time. This multiplicity of activities put farmers at risk of losing whole fields to weeds, as revealed in the farmer's comments below:

You see, all these vegetables here are covered in weeds. That bush you see there [pointing some distance away] is covering my groundnuts. If they remain unattended like this, I am not sure what I will do because rats will come and eat them up in those weeds. The bananas are also covered with weeds. For some crops, I might end up spraying because if I continue at this pace, I will not finish. (Informal interview, Joyce, October 18, 2007)

Sometimes fields required weeding more than once in a space of about two weeks as they grew so quickly. A farmer explained this problem:

When you came the other time [one week ago], I was weeding this field and I decided that am going to concentrate on it and finish all the work that needed to be done on it. But now look at it: the weeds are growing as if nothing was done. By the time I get to

the top of the field, at the bottom the weeds are already growing. (Informal interview, Keziah, April 21, 2008)

The worst cases were where farmers had to run from one field to another before finishing, without any rest, as the following farmer explained:

My banana field is covered in weeds. The beans need weeding, I need to plant some more beans before the rains stop and I have banana suckers that I need to transplant to another field. I keep running to the banana field at the other end of the hill because it is in the worst shape. These days it will be so difficult for anyone to see me unless visitors come in the evening when I have returned from the field. (Informal interview, Vicky, March 8, 2008)

The weeds did not affect all fields in the same way. According to the farmers, *ndimiro za VEDCO* (fields of VEDCO) were the most neglected, unless the RDE decided to work the field and claim it as his/hers. Most farmers tended to their individual fields first before that of the group field. Sometimes they did not attend the group field at all, as the following experiences show.

We were visiting a group-owned field on which they had planted cassava. The plants were still young, but they were covered in weeds and farmers had not had time to weed. When looked at from the road, one would think that it was just a bush, but the extension worker assured me that there was cassava growing and when examined, there were indeed young cassava plants. The extension worker explained that the cassava would die soon if the group members did nothing about it. There was a part of the field that was weeded and as we were leaving, one of the group members came over to the extension worker. After formal greetings were exchanged, the extension worker said:

Soki, can you see our young cassava? It is definitely going to die if it remains in those weeds. Why don't you all work on it? If you were to put in only two days' work, it would all be done. If I had known that you were going to leave the cassava to be like that, I would have given it to another group, which would manage looking after it (EW).

Soki answered that:

Most of the members do not come to work on this field because their own fields at home are also covered in weeds. Many of them promise and say 'tomorrow I will come', but they do not want to leave their own fields covered in weeds. And yet once

they have started on their own fields, it becomes so hard for them to leave. You keep saying let me finish this small part or that part and finally you fail to finish and come to the group field. And because one expects others to come, they do not know that the other person also never came, then no one really comes from that group. And that puts the load of looking after the field on me as the host farmer, because I am the first person whom VEDCO will come looking for if they find their field in weeds. (Field notes, Soki, October 26, 2007)

Apart from the experience of Soki and his group, during a community review meeting, farmers had also complained that some of their fellow members were not coming to the fields to share out work as a group. They highlighted this as one of their major challenges in working with groups. One of the farmers said:

For example, on our field, we sat down as a group and decided to plant cassava. The stems were finally delivered and we got together and planted. But as soon as the rains intensified and the cassava needed weeding, farmers refused to come. Only 2 of us out of 25 people worked on that field. But when it reached time to sell the cassava, every farmer wanted a share of the money because they said VEDCO had given them and they had also put in some of their money. But in fact they wanted to get money for no work done. (Farmers' meeting, February 15, 2008)

The above explanation by the farmer shows some of the challenges of working with groups. In the above case, some farmers were not willing to contribute labour, but they wanted to share in the harvest.

4.5.1.3 Increased cost of transport

With the blessings that came with the rain, also came factors affecting transport and travel costs. As mentioned earlier in this chapter, the road system within the villages was all untarred. In the rainy season, it became very slippery and whoever provided transport on a motorbike increased the fare to whatever amount they felt comfortable charging. The transport costs doubled and one could not walk for such long distances because the roads were narrow, slippery and full of mud. Pools of stagnant water on the sides of the road also prevented walking. As farmers had to pay much more than usual for transport, this affected the total family resources, whereby they used more money than the normal cost. For example, one day I planned to hire a private motorbike rider to take me around the village. When I told the driver where I wanted to go, he said that he would charge me double the usual price. I was furious

and tried to bargain but he told me that we shall go and that when I see the road, I will agree to pay him more. He also challenged me to find any other person who was willing to take me for less. Since he was a reliable rider with whom I had worked before, I accepted the charge and we proceeded.

We started our journey well and then reached the stream which we had to cross to get to the village. I noticed that the stream water had increased in volume since we had been there three days previously. When I asked if he was sure to make it across, he said that he would. Not trusting his judgement, I left him to venture into the water alone. As the mud settled at the base of the water, I started out. He tried to cross and when the bike failed to move through the water, he had to step right in the middle of the deep part of the stream. I tried to walk through and I realised that the water was higher than I thought it was. I tried another side, which looked shallow, but I fell in the water, before finally managing to cross. When we reached the village, in my waterlogged riding clothes, Ismael, the farmer, laughed at me and said that from what I looked like, he could tell where we had passed. He told us that we should have taken a different road to the village. He explained that it would have cost us much money – four times the normal cost (Field notes, April 17, 2008).

The poor state of the roads meant that some vehicles which were bringing planting materials to farmers would not be able to deliver them. Farmers travelling to town to look for such materials were going to be charged more. Farmers who were harvesting to sell would have to meet higher transport costs. What was significant was that in one day, the transport charges had increased from Shs.1000 to Shs.2500. Such arbitrary increases in transport charges put stress on the livelihoods, as money that was supposed to be used for other activities had to be spent on transport hikes.

4.5.1.4 Increased malaria cases

Without affording a recovery period to deal with the challenges that farmers were already facing, cases of malaria started increasing. A child was being buried in a nearby village, the cause of death being malaria. Malaria started attacking people in the households of the farmers with whom I was working. Even though people contracted malaria all the time, the frequency of attacks increased in the rainy seasons. The two examples of severe malaria I give below could have had fatal consequences due to lack of medical attention. While constructing the

seasonality calendars, farmers discussed how malaria, diarrhoea and chest infections increased during the rainy season.

In the first case, a grandmother was at home with a child of two years and some other young children. The mother of the children had gone far off to cultivate on another person's farm. The child was sick and had not been well since the previous night. The grandmother explained:

The child has been restless since last night and in the morning the mother left before the child was awake. She decided to first run to the field to pay off a debt in her gardening group, because if she did not, her group members would not work on her field. She is coming to take the child to hospital. The child has been crying non-stop since morning. When we ask her what is paining, she touches her head and says that her head is aching. (Informal conversation, Alice, April 11, 2008)

When we touched the child she felt very hot so we told the grandmother that the child needed to get to a hospital. The grandmother could not walk well due to old age so she had to send for the mother of the child to come and take the child to hospital. An older child took a bicycle and rode away to call the mother. After 45 minutes, the mother had not returned and the child was crying. We gave the sick child a painkiller to prevent the temperature from rising. After one and a half hours, the mother reached home, picked up the child, got on a motorbike and took the child to hospital. The child was admitted for four days with severe malaria. The mother of the child did not have money to pay for medical expenses. As this was necessary before discharging the child, she borrowed money from her friends to buy medicines and cover other expenses. In addition, she still had two fields that still needed weeding and planting. (Field notes, observation and informal conversations, April 11-18, 2008)

Due to one case of sickness in the household, expenses eroded the assets and left the family in debt. In addition, the source of income, crops were covered in weeds, and she had so far failed to plant other crops.

In the second instance, the patient was a farmer in one of the groups. She was a chairperson of her farmers' group and had shown me her field of crops. When I left her, she was on her way to bury a child in a neighbouring village who had died due to malaria. Before I got home, I received a call that the farmer I had spent the day with, had collapsed. The only people with her were her grandchildren, who rushed to the trading centre and called people to take her to a

hospital in town. They had to travel for seven kilometres on a bicycle, pushing it because she was unconscious. At the hospital, they found she had severe malaria and she was admitted for over a week, the first three days of which she was unconscious. The next time I saw her she was recovering from her ordeal (Field notes, April 30, 2008).

The first malaria attack affected labour in the household as well as their financial assets. It also shows the importance of social assets in the way neighbours lent money to the farmer. In the second case, the affected farmer lost labour days on her field and had to first get better. This was at a time when labour was most needed by the family to plant and weed. The two examples serve to demonstrate how one shock could lead to multiple negative effects on the livelihood system and increased risks. Next, I will examine hazards that were unique to the dry season.

4.5.2 Hazards in dry seasons

As the rainy season was ending, the dry season started with its own set of hazards. The rains reduced steadily as time went on and before farmers knew it, the sun was drying up crops and times of severe scarcity became reality. During such times and depending on what effects the hot sun brought with it, prayers at meetings were asking God for rain. When the heat intensified, like in January and February, lifeless crops along the roads could tell part of the story. The other part of the story was told by the everyday decisions that people made about food, money, school fees and other needs that they could not meet.

For example, on a very hot day, we noticed that some of the banana plantations were showing lack of water and the ground was getting harder for farmers to till using their hand-held hoes. When we visited one farmer, we could both see that the clouds had changed, and there were chances that it would rain. Before we could say the word 'rain', she begged us to keep quiet. She said that if we mentioned it, it might hear us and go back where it was coming from. So we were no longer permitted to speak about the rain. (Field notes, February 22, 2008)

4.5.2.1 Effects of the sun on crops

Some crops were yellowing because of the sunshine that they were exposed to and some had succumbed to the heat and dried up. Most weeds were drying up to a brown colour, but a few were still growing. (Field notes, June 24, 2008)

As we moved around, farmers expressed their frustrations:

Do you see the beans I planted the other day, expecting to harvest some food for my family to eat? The leaves are dry and have turned yellow due of lack of water. The rain got finished as soon as I had planted so the plants only managed to come out of the soil. Now at the time of harvesting, they still have not put any pods. Instead of the ground being covered by green leaves, it is all bare ground. The maize has also turned yellow and is very stunted. (Informal conversation, Peace, June 24, 2008)

The mood was slowly turning into frustration as farmers waited for a change in weather. According to farmers, the side effects of the sun on their local plants were different from its effects on modern plants promoted by VEDCO. The following conversation about bananas indicates this. One farmer's wife recounted how they worked so hard to protect young modern banana suckers, from which her husband was now harvesting bananas for sale:

I will never forget those bananas at the back and for me, I think I will concentrate on potatoes, cassava and beans. We had to look for water in the dry season because the sun shined for a long time and the bananas were drying. My husband said to me that after all the trouble he had gone through he would not let his bananas die. Therefore, we got containers and we would fetch water day and night to make sure that all banana plants were fed. And we had to do that three times a day, morning, day and evening. Even if I feel happy seeing a grown plantation, I will keep off those bananas and concentrate on my local ones that do not need all that fussing. (Informal interview, Becky, March 18, 2008)

For those who managed to water the plants, they then needed labour to weed. There were many weeds because termites had eaten the initial mulch that farmers used. The following explanation by Becky showed what happened:

After watering, then weeds would all come in big numbers and we would regret why we decided to water the bananas. Then he decided to go and get grass and mulch the plantation so that he would have some rest from the weeds. But even after that, because of the termites that ate the mulch up, he had to constantly search for mulch and manure to keep throwing in the plantation. Without such care, you forget getting any bananas from that field. It is constant work and yet takes a long time to get returns. (Informal interview, Becky, March 18, 2008)

In the case described by Becky, the farmer could not let his crops die because he had already invested too much labour in them, so he tried to save his crops with all the labour available to him. The burden of providing labour as explained above fell on the wife in the home. Becky's decision to grow local crops was not because she lacked knowledge, but because she could not manage the labour demands.

When the sun intensified and crops were drying up, extension workers had taught farmers how to mulch to protect the crops from drying up. In cases where extension workers found that farmers had not followed their instructions, they became furious. The following extract from an informal conversation with an extension worker showed what extension workers felt:

You see these farmers, now look at this plantation, the suckers are all drying up because they are not getting enough water and he [the farmer] did not bother to mulch at all. If he had mulched, at least the situation would not be as bad as it looks now. On top of that, there is absolutely no manure or covering in the holes where the banana plants are growing. How do farmers expect this plant to keep water? These farmers ask for things, we teach them and we give them what they want. But just simply looking after them becomes a problem. Then they expect to get more. (Informal conversation, extension worker, January 29, 2008)

The extension worker started gathering some dry plants and leaves to cover where the banana plants were growing, but the ground was bare and he could not find any (Participant observation, January 29, 2008). Farmers were also helpless because the sunshine was drying mulch they had gathered as Sarah had earlier on explained that:

Musomesa, we also do not want our crops to dry up, but we have nothing to do. We have nowhere to get mulch. And when we get it termites eat it. Because of the amount of work that we are supposed to do, we let the bananas survive and when it rains, they grow again (Informal conversation, Sarah, January 17, 2008).

Furthermore, female farmers explained that they could not mulch their fields because the bushes from which mulch was obtained were not safe enough for women to access. This was best illustrated by Vicky's explanation below:

I am a woman and it is dangerous for me to go to the bushes where men get grass to mulch the fields. The men are lucky, they are able to do that and you will find some of their fields neatly covered, but where they get the grass is far and bushy and it is

difficult and unsafe to get women to go there. It is so bushy and frightening. Those who have men available usually have them cut the grasses for them. (Informal interview, Vicky, April 9, 2008)

While Vicky knew that it was important to mulch, knowledge alone was not enough because she was worried about her safety while securing mulch. Women, who did not have males to help them cut the mulch feared to be raped or molested in the bushes.

4.5.2.2 Food scarcity

As crops were drying up, so were food sources, and hunger started affecting families, as Nakitto explained in the following conversation:

January to April and July to September are usually the worst due to food scarcity. This year was not as bad as the previous year. Last year, there was no food at all. We had some money, but the demands were also many. For example, we had to pay school fees; the prices of food were increased so it was difficult to buy food. That time even this cassava was not there, people really toiled. (Informal conversation, Nakitto, June 27, 2008)

As the sun became hotter, plants dried up before their maturity, which left no produce for farmers to eat or sell. Where they had cassava or sweet potatoes, 'dry food' as they called it, there was no sauce to accompany it, as one farmer explained:

When there is rain, somehow there are many crops, wild and others that are available for us to get and use as sauces. We steam them and eat them with food, then it is not so dry, but when the ground is dry, even getting green leaves is impossible. (Informal conversation, Namu, July 1, 2008)

In another home, a farmer's children came from school for lunch but she had nothing to feed them. She had been looking for green leaves in the bushes and field near her house. She returned to the kitchen with a handful of leaves that would not be able to feed her six children and her husband. The children checked in the saucepan where cassava had been cooked the previous night and there was none left. They told her that the headmaster had told them that their parents should send school fees. Namu (the female farmer) looked down and shouted at the boy to stop spoiling banana leaves that they were going to use again. As she had been unsuccessful looking for food for her children, she sent them back to school (Observation, field notes, July 1, 2008).

With farmers faced with food shortages, it was difficult for them to focus on using the agricultural extension knowledge that they had acquired from VEDCO. This was especially because, as in Namu's case, the extension knowledge was not going to provide her with an immediate solution to food shortage.

Some mothers would just send children off into the banana field to look for anything they could eat for lunch before they went back to school. Sometimes the children were unsuccessful as the following description shows:

The children have come for lunch but I have nothing to give them. They have been to the plantation but there is nothing there that they can eat. Sometimes we have jack fruit but they have already finished that too. I am only concerned about supper now. Their father went to buy some beans and posho (maize meal). If he was lucky and got his money, we shall have something to eat. Otherwise am going out to look for cassava which my friend promised me. (Informal interview, Judith, February 28, 2008)

In the above explanation by Judith, the different strategies to get food had all yielded nothing. Her last resort was her friend, showing the importance of social relations and networks in poor peoples' survival strategies.

As the children came home for the holidays, the struggle to put food on the table became even more urgent. Farmers needed more food for the families and yet the amounts they had did not increase. Peter a father explained that:

I am relieved when my children come back home for holidays, but you know these children need food. You cannot tell them that since I am cutting costs, I will be spending on only one meal – they need their food when they need it. Then Christmas comes and they want some meat and some rice to celebrate. You [the parent] cannot tell them that they will eat only bananas. They will not enjoy. Now I have to make sure that they take breakfast and lunch late so that by supper time, they are still satisfied. (Informal interview, Peter, December 15, 2007)

Peter's explanation above not only shows the food needs of farmers, but it also shows that farmers needed incomes. VEDCO's trainings therefore were important to farmers to increase their incomes. But their food needs were also outstanding.

As food shortages sank in and the ground became harder to till, farmers worked longer hours in fields further from home. Some farmers who had access to wetlands went to grow crops there and returned home late as the following observation shows:

In this family, a farmer (male) returned from the day's work at 3.17 pm and found us at his house. He saw his wife cleaning banana leaves and peeling cassava so he asked, "Do you have anything to eat?" The wife told the children to hurry up and get something for their father to eat. As he washed his hands, the children came out of the kitchen with a piece of jackfruit in banana leaves and the son cut and gave him to eat. And the wife said, "I hope that can keep you till the food is ready, it will not be long." (Observation, field notes, January 17, 2008)

The farmer had spent the whole day in the field in a wetland working, and came home to find no food to eat. In cases like the above, it was not because farmers had no knowledge about the importance of providing proper meals to their families – there simply was nothing to provide.

In another case, I reached a farmer's home at 3.30 pm on a hot afternoon and joked that she was preparing lunch late (she was peeling cassava to wrap and steam in banana leaves). I asked her what visitors (me) would eat and she told me, laughing:

You cannot manage the food we are eating these days. We are eating this cassava I am going to cook and I will make dry tea and that will be our dinner and lunch combined. If some cassava remains, that is what we shall be eating, especially the children for breakfast until we get another meal tomorrow... I hate days like this when one cannot find any green leaves because the sun has dried all of them up. (Informal conversation, Grace, January 28, 2008)

Grace knew that the food they were eating was not a good meal for her family, but she did not have much from which to choose. The assets she had at her disposal dictated the type of meals her family would eat.

VEDCO was training farmers to produce crops for sale, but sometimes the need to get extra income worsened the food security problems. For example, if food was planted for sale by their spouses, the female farmers had to look for food elsewhere, as Kaala explained below:

Don't you know the reason why we (women) are poor? The only thing we think about is what our children will eat before anything else. When the man has helped me and given me somewhere to grow food, I cannot turn around and ask him for anything else. The rest remains up to me to make sure that I use land maximally and produce enough food to feed the family. When the children are hungry, they ask me for food. When the man comes back hungry, it is me he asks for food. So I have to make sure that I get the food, using whatever means I can. All the bananas from here will end up in my kitchen. (Informal conversation, Kaala, March 14, 2008)

The responsibility for producing food for the home rested with women. Failure to provide food meant that they took the blame. Women had to negotiate their way around food scarcity, as it was their social responsibility. As in the case below, seeing fields around the house did not mean that a family had enough food during food shortage times, as Kaala explained:

When you come near my house, you see a lot of food around, but come back in a week's time and you will not find any of this food. My field and where I can get food, is only this one near the house. Apart from that, that cassava field is my husband's and he cannot see anyone near it. So I do not think I will be selling any crops from my fields. If I have to, I will have to add some crops on this same field and get a variety of harvest from different crops. When he has decided that this food is for money, you can forget eating any food from his field. He has already counted that money and it is as good as the one in his pockets. (Informal interview, Kaala, January 24, 2008)

When we went back after a week all the cassava near Kaala's house which she had talked about in the interview above, was uprooted and the field was clear like it had never held any food. Kaala, the female farmer, had to look for food from all sources available to her because overnight all the cassava near the house was sold off and her husband (Muzaale) was in charge of all proceeds.

Kaala's situation was further justified by Peter and James, who were both RDEs. They had gone through VEDCO's training which included issues on how to ensure food security, but they still sold all the food in their households, irrespective of whether there was food scarcity or not. The knowledge that they had gained did not differentiate them from other households in terms of food security.

For example, in the following case, I was in the field chatting with Peter, one of the farmers about his harvest. He had just cut down a good-looking bunch of bananas from his field of modern bananas that VEDCO had given for food security. When I remarked that his family would be happy because they were going to have some food to eat after some time of scarcity, he replied:

This banana bunch that I am going to harvest is not for the family – it is to be sold. A buyer from town is going to take it and the eggplants that I have put on the banana leaf there. It is a woman's job to make sure that she had food for her children. For me, I have to look for fees and money for other big things. Food is her territory – I do not concern myself a lot with that. In fact, if I did she would be worried that I am poking my nose into her issues. I even gave my wife her own part of land and plantation so that she does not turn around and say that she had no land to grow food. (Informal interview, James, March 11, 2008)

While seemingly supporting commercial agriculture, Peter was sure that his wife would not get to sell her produce. She had planted crops for food instead of cash crops and he had already planned for it, as he explained that:

I have left this part of the plantation for my wife. She can always decide what she wants to do with it. That is her plantation just by the house and that is where she gets the bananas she cooks for the family. The beans field you see there is for my wife. I cannot touch it because she has planted and looked after it herself, and she decided to plant beans while for me, I went for maize. But I know we will be eating those beans at home. I think this banana field is not enough for her, so when I have finished expanding my banana field. I will give her the remaining land for her own use. (Informal conversation, Peter, May 26, 2008)

The field Peter talked about, which was near their house, had a few banana plants that were not sufficient to feed his household. The bananas were also intercropped with coffee plants that were his. The only part Becky (Peter's wife) had access to and used, were the banana plants but not the ground on which they were planted. The field that he gave to Becky to plant beans for the family was at the corner of his own fields. (Observation, May 26, 2008) The explanations given above show that in some instances, knowledge of food security was not enough to ensure food security. Furthermore, it raises more questions about the effectiveness of knowledge and behaviour change. For instance, looking at what was done and said by Peter,

one is inclined to ask whether knowledge acquisition alone is enough for knowledge utilisation. What about ownership of assets that allow farmers to put what they have learnt into practice?

Such was the life of women in Kasaala and Sambwe and their experiences with food scarcity, while existing in a system that did not help them manage their responsibilities. Women devised several strategies to deal with food scarcity. For example, in Judith's household everyone became involved in looking for food. In other households, they reduced the number of meals they had and others sold what would be food to get money. Whatever their strategies were, and as I will argue later, the modern farming systems did not pay attention to any of these diverse ways and adjust to them. Instead, modern systems proposed and promoted an overhaul of the whole livelihoods system. The result of all this was that crops meant for food security were sold off because the responsibility was given to the men whose primary role was income. I shall revisit this as a contradiction in chapter five.

4.5.2.3 Crop diseases

Amidst food scarcity and related hazards, crop diseases attacked crops with ease at any time of the season. Farmers' experiences showed that the incidence of diseases increased in October to November and January to February. What made matters worse, was that both the extension workers and farmers were not able to diagnose such diseases and treat them. In the farmers' frustration, they kept asking extension workers for help, as the following case shows:

Musomesa, olunnyo [wilt] is attacking our crops again. This time it is attacking vegetables and bananas. It attacks the whole plant and dries it up. It is as if something in the ground sucks all the water and the green out of the plant, which eventually makes the plant fall. Come and look at my eggplants that have been affected. (Informal conversation, Kirya October 18, 2007)

I asked what caused it and how they treat it in their communities and Kirya continued, explaining:

As long as one is in agriculture they will encounter this disease. We [farmers] call it a disease of the soil because it originates from a particular place in a field and dries up the crops it attacks. It does not spread horizontally; rather it remains in a particular space and dries up the crops there. There are other types, for example, the wilt that attacks bananas is different from this one here that attacks beans, groundnuts and vegetables. It is very rare for it to attack a big plant. Usually when I find that it has

attacked a particular part, I let it eat that plant because if I uproot and take it away, it will move to the next plant and instead of preventing it, I will have spread it. It is more common in the wet season. (Informal interview Kirya, October 18, 2007)

In the above conversation with Kirya, it is clear that he knew about the wilt, but he had no knowledge on how it could be treated. He sought help from the extension worker in order to deal with it but unfortunately, the extension worker did not know what to do either.

The wilt was not the only disease attacking crops. For example, while moving in the fields with a group of four farmers, we reached a plantation that had a type of banana used to make local beer. One of the banana bunches was sick and yellowing before maturity, a sign of a common banana wilt. All the farmers were taken aback and were a bit irritated that such a plant was still allowed to grow, even though the plantation was growing wildly. “How can this banana with wilt be allowed to be standing in this village? Where is the machete?” asked one farmer. He was given a machete and he cut down the sick banana plant. He uprooted it with the help of all farmers who were with him. They were careful to ensure that no roots remained in the soil. He then instructed his son to set the banana and all its remains on fire (Informal conversation; participant observation, February 2, 2008).

I later found out that what these farmers did with the sick banana plant was as a result of the training they had received from extension workers on banana wilt. It was a ruthless wilt and messages had been spread countrywide on how to deal with it. The threat that it presented to other banana plants and hence the livelihood of farmers motivated them to put into practice what they had learnt.

However, sometimes farmers found that some types of wilt were strange to them and to their technical staff, the extension workers. What the farmer had done with the wilted banana in the previous farm, another farmer could not do to a whole field. From observation, the wilt attacked plants one by one on farmers’ fields that were growing according to the farmers’ knowledge on farming. But when it attacked modern crops, it tended to attack whole fields at the same time, as the following example shows:

There were farmers who had a plantation near their house of about 250 banana suckers that were still young as they had not yet produced any visible banana bunches. VEDCO had

distributed the banana suckers as part of the food security programme, and the plantation was also a demonstration field for VEDCO-supported farmers. The first time we saw the field, it was neatly planted and there were hardly any weeds. It was mulched and well tended. When we went back to visit the farms after a month, the farmers said that we had to see for ourselves what olunnya had done to their crop. We went to the field and it was such a disheartening sight. The youngest banana leaves that were starting to grow were drying up. If the middle ones dried up, this would kill the whole plant because as time went on, it would not have any new leaves growing. The extension worker did not know what disease it was and how it could be stopped. He promised that he would find out and decided to name it the 'leaves disease', though farmers were calling it a type of wilt. (Observation, April 18, 2008)



Figure 4.5.2.3-1: 'Leaves disease' that was attacking modern bananas (April 18, 2008)

The farmers were stranded with the diseased crops and the new knowledge they had received from VEDCO was not of any help. Worse still, none of the extension workers were able to identify the disease, let alone offer solutions on its treatment. This demonstrated that modern knowledge also had limits in what it could offer farmers.

In addition to bananas, cassava that farmers had received from VEDCO the previous year was also becoming sour. Cassava was planted so that farmers could get food from it, and also

share and distribute cassava stems to group members to plant. However, farmers discovered that when cassava reached its maturity, ready for harvesting, it became sour. As the farmers explained below, VEDCO extension workers did not know the cause of the sour cassava:

The cassava varieties that VEDCO gave us yielded very well and we got excited the first time. However, when we uprooted the food, it was sour that even buyers could not take it. It turned sour as soon as it matured so we found that we had no food to shield us from food scarcity. We have now resorted to finding some of the stems on the ones that we had and were sure about. You would look at your family and you know you have no food and wonder what you are going to do with a useless field full of mature but sour cassava. (Informal conversation, Namu, April 15, 2008)

Farmers had been asking the extension worker what cassava variety they were given and he said it was like the one they had got before. Farmers asked if they could not get any other variety, but the extension workers were not receptive. Karono explained what happened to the cassava:

The cassava variety I have in my field is not a good type. It becomes sour as soon as it matures and I cannot even say that by the time the season is over it will still be ok. If cassava ceases to be the crop that saves us from these long hunger spells, I do not know what we are going to do. Imagine, the one I planted last year is already getting sour again. (Informal interview, Karono, February 21, 2008)

Farmers who were affected by the sour cassava were now stranded with it as they explained in the following conversation:

When all the other crops were destroyed by hailstones last year, at least some of the cassava remained standing and we knew that at least we would have food for this season, for a while. Now with cassava turning sour, it is frustrating. You have a field on which you have wasted all your efforts and at the end when you are supposed to be enjoying the fruits of that labour, the cassava turns sour. It is not only me, even other farmers are complaining. Look at all those plants standing: they are full of good-looking but sour cassava. We can neither eat it nor sell it because the traders first check to see if it is ok. (Informal interview, Twange, March 26, 2008)

Cassava buyers came from town and they only took a little of the cassava that was left when hailstones struck last time. When we tested cassava from the other field, we

found that all its cassava was sour. I am even confused about what to do with this cassava. Some people have advised me to dry it, but I have to have the facilities to dry it and that translates into less money because the buyers weigh it in kilos. (Informal interview, Kirya, April 8, 2008)

The farmers' experiences above serve to show that when they were exposed to modern knowledge, they took it up and planted crops they were given. However, the dangers that came along with modern knowledge did not make it attractive to farmers. The cases above show that farmers lost food and money through the banana wilt and sour cassava. Although VEDCO brought them such crops, the organisation was not able to help them with the consequences of the new knowledge. Some families were not going to have food, while others were not going to have an income. If agriculture did not fulfil either of these needs then one wonders what its purpose was. The farmers were left to deal with the unfortunate events and move on with little or no support. One wonders whose responsibility it was to prevent or manage farmers' challenges with diseased crops.

Some farmers made appeals to VEDCO to change the crop varieties they were getting, but VEDCO did not listen to them. This would have been part of farmers' preventive measures to keep such diseases away, but the varieties the farmers received were not up for negotiation. They were merely receivers and in most cases, they had no choice, as the following shows:

During fieldwork, farmers were complaining about a type of banana named Nakamali banana variety. Farmers did not want Nakamali and one pleaded with the extension worker thus: "Musomesa, please do not give me Nakamali this time. The last lot of suckers you brought me had a lot of Nakamali. Please do not bring me more."

To which the extension worker replied, "I cannot know which sucker is going to turn out as Nakamali. But even then, as long as a sucker has got all the manure and all the attention it needs, it cannot turn out as Nakamali." (Participant observation; informal interviews, March 2008)

I was interested in knowing what Nakamali was so I kept asking wherever we went, to see the farmers' conceptualisations of this type of banana. One farmer told me that "it is a type of banana that is so poor in quality". He explained that even if one feeds Nakamali with all the manure one has, it will still give you a poor quality type of bananas. Another farmer told me that

“it is a type of banana that does not grow, becomes stunted and even when you move in the whole plantation, you will find that it always looks emaciated compared to others”. The extension worker assured me that farmers did not want to take responsibility for the good and bad bananas from their plantations because to him, the farmers’ *nakamali* could be nourished to look good if the farmers were to pay attention.

With such conflicting views about *Nakamali*, I wanted to know more about *Nakamali*. When I asked a commercial farmer who was supplying banana suckers to VEDCO if he had experience with *Nakamali* on his farm, he took me around to show me *Nakamali*. The farmer showed me an emaciated type that produces a poor breed of banana and he said that even if it gets all the nutrients, it still produces an emaciated-looking banana plantain. I asked if he could identify *Nakamali* suckers to avoid selling them to poor farmers and he said he could not tell when they were small. It was a farmer’s luck not to get these poor suckers in his/her lot, unless they were uprooting from local bananas, where one would already have seen what type of plant they are getting. So I told the extension worker that there is such a thing as *Nakamali* and he laughed at me and said, “You mean you were still following up on the *Nakamali* story? Why would you do that? As part of your data collection? (Participant observation, April 2008)”

The attitude of the extension worker showed that, the chances that farmers’ knowledge of crop varieties would be incorporated into what extension workers were teaching them, was next to none. This is further demonstrated by the following case in which farmers did not want *mpologoma* banana variety and instead preferred *kisansa* banana variety.

Kisansa and Mpologoma banana varieties

The farmers were about to receive banana suckers and there was great excitement about it. Most farmers were asking what type of bananas they were going to get, but all those who were going to get suckers were asking the extension worker to kindly give them a type called *kisansa*. We kept hearing this from farmers and the extension worker kept telling me how funny farmers are, that they just want one type of bananas. I asked him why they wanted *kisansa* and he told me that farmers were never sure of what they wanted saying, “Today they ask for one thing, the next day for something else.” I followed it up with farmers, visited their fields and they kept asking me what type of bananas they were going to get. I asked them what varieties they wanted and why, and all farmers who wanted *kisansa* were convinced that:

Kisansa are a better type of bananas because they give a bigger and heavier bunch that fetches some money for us. And it stays longer in the field before it ripens and as you know, no one will give you any money for ripe bananas. Mpologoma on the other hand, grows very big bunches and it falls down before it is due to be harvested. It falls when it is young and you will have wasted all that time taking good care of it. (Informal interview, Ismael, February 26, 2008)

To prove the differences between the two bananas, every time we went to the field each farmer tried to show me the difference between the two types of banana varieties. From observation, when wind blew, mpologoma fell and broke before maturity. Even Ismael, the experienced banana farmer with three fields, was never given a chance to explain why farmers did not want mpologoma.

In the cases explained above, farmers demonstrated that they had some knowledge of crop diseases and crop varieties. The extension workers on the other hand, did not have any way of incorporating farmers' knowledge into their own modern knowledge. The farmers were simply supposed to be receivers of knowledge, but extension workers did not think that they had anything to learn from farmers. What we must understand though, is that it was not that the extension workers specifically intended not to incorporate farmers' knowledge into their own knowledge. It was the hierarchical nature of the systems within which farmers and extension workers operated that made it impossible for extension workers to listen to what farmers were saying. Unfortunately, this sometimes led the farmers into losses of income and food, further increasing livelihood insecurity.

4.5.3 Other hazards

4.5.3.1 Insecurity of land tenure

Having described the nature of land ownership earlier in this chapter (see section 4.3.5.3.1), it was clear that the mode of a farmer's land ownership determined how long they could comfortably stay on that land. In one village, problems became apparent between May and July while I was in the field. Insecurity of land tenure disrupted farmers' livelihoods. One group member who was affected by tenure insecurity is a single mother of six children and was a leader of a group. Her case showed such consequences of land tenure insecurity, as she explained:

I have lived on my brother's land and have cultivated his land for a very long time. Now he has decided to sell to some buyer from town so I have to move and look for another place where I can stay. I want to try to keep my crops that I have on this land and on other pieces of land where I grow other crops. I do not have land that is required to start farming as a business, but I will look around to see what I can do. I will probably go back to my father's place because there is land there where I can grow food and I will live with my children there. I will keep coming back [it is 40km away] to plant my crops here because VEDCO does not reach where I am shifting to. (Informal interview, Keziah, June 10, 2008)

After a week when I went back to Keziah's home, she had left. She used to travel from her new home every fortnight to tend her fields.

In the urban town, there were farmers who owned plots of land and this increasingly became an issue in the group, because they would not be supported to do modern commercial farming. The sizes of their land did not meet VEDCO's criteria to be entrepreneurs. They explained:

Most of us here in this village are not bibanja (free hold titled land owners). We just own plots on which we have homes, and that is where we plant our crops. Sometimes we rent land and plant crops but it is hard to find land here that no one is using. We are therefore left out when they say that we should use five acres or more if we are to get any money out of our fields. (Group discussion, Kasala, February 22, 2008)

In yet another village, land grabbing was becoming a daily issue, which left many farmers very uncertain, as the following case showed.

In one village during a meeting with a farmers' group (Group discussion, July 7, 2008), one of them explained how they experienced land tenure insecurity. He said, "These days you wake up and find that your land was sold with you on it, while you were literally asleep." Strangers from the city were selling farmers' land without informing them. Strangers came claiming that the titles farmers had were wrongfully obtained, so they should vacate their homes. It was a fraudulent exercise that allowed 'white-collar' thieves to sit in their offices and sell off the land of unsuspecting people.

During a meeting in July (Group discussion, July 7, 2008), a group member arrived and told the others that someone's land had been sold the previous day. They explained that court brokers, dressed in army uniforms, had come and evicted families that were known to farmers in the meeting. One farmer, an old man (Semu) was shocked and said, "I did not know that, because that is my neighbour. Where his land ends is where mine start." Other farmers advised him to "run and find out what was going on because you might be seated here and you find that your land was sold off by some stranger who claims to have rightful ownership". Semu lamented, saying "What will I do if I find that they have sold off my land?" He left in hurry and went to find out if he was still safe.

When I asked the other farmers if they had complained to the land office at the district, they said that they have been to all the authorities. When they thought it was over, army men came with a woman who claimed to be acting on behalf of the true owners and expelled every occupant. Farmers also explained that the army men slashed crops they found growing on the land. Those whose crops were not slashed, were barred from accessing them at harvest time (Group discussion, July 7, 2008).

In a particular village where land ownership had been held under a common title, farmers planted crops that took a short time to mature. The insecurity of land tenure in these cases was the determinant factor of what new practices farmers could apply. One farmer explained:

Many people you see here do not own the land they are cultivating on. All this land belongs to the grandchildren of Kisingiri⁵. It makes me wonder where people will get land on which to cultivate if they are being required to have five or more acres. (Farmers' discussion; Muzaale, January 28, 2008)

When Muzaale made the statement above, no one questioned or challenged him and there was silence in the room, until the extension worker introduced another subject.

While challenges regarding land ownership did not appear in any particular season of the year, the havoc and confusion they caused to an agricultural system was very apparent. Some people who had planted crops could not harvest them because their land had become

⁵ Kisingiri Zacharial was one of the regents of a Buganda king (Daudi Chwa) who was enthroned when he was still a child and needed mature people to guide him. Kisingiri was one of these men chosen for that task. The three men who were chosen became famous and were rewarded with a lot of land by the Kabaka who was the owner of all the land in Buganda and could do as he pleased with it.

inaccessible. Those who were planning to plant and harvest could not do so either. Moreover, farmers could not find any legal redress because according to available records, even if some farmers had occupied the land for their entire lives, they were now no longer owners. What was more intriguing was that VEDCO had as part of its programmes, a documentation, communication and advocacy component. This component was supposed to help farmers to deal with issues such as land disputes. Yet farmers had gone for help from all other institutions apart from VEDCO. When I asked them why, they said they did not know that VEDCO had such an office. Even in an era where VEDCO was supposed to provide demand-driven services, the 'clients' did not know the services that were being offered.

4.5.3.2 High labour demands

Across the seasons, labour demands were constant because agriculture in Luwero is a labour-intensive venture. Farmers used hoes to till the land so whatever activity they did demanded labour. The hazards diagram shows that farmers singled out labour shortage as one of their major challenges.

For instance, Namaganda's crops were rotting in the field and she explained that:

My beans are rotting in the field, I have failed to get someone to help me harvest them because am busy planting other crops. At least with beans I can save something, but if rain stops, I will not be able to plant, so I have to plant first. (Informal conversation, Namaganda, March 7, 2008)

In one village, men went away to engage in brick making at the beginning of the rainy season when labour demands on the fields increased. Judith explained this:

Now that rain has started, you will not find any man in our village. Those who have access to the swamp all leave early in the morning and go to make bricks for sale. This is the season for bricks when the clay softens. Most of them leave farming for a few weeks, make bricks, sell them off and come back to farming. My husband had to go because we do not have sauce in the house, so at least he will return with beans for us. (Informal interview, Judith, March 11, 2008)

Farmers who had bigger fields faced more labour shortage than those with smaller fields. Some of them explained their labour shortage experiences in different seasons:

I have looked for casual labourers who are usually looking for small jobs to do so, that I could pay them some money and they work, but I have not found any. It seems jobs are now looking for them. The demand is high. I found one yesterday but he asked me for a lot of money just to till a small piece of land and I let him go. Now I am regretting why I did not take him. (Informal conversation, James, April 8, 2008)

When you plant a small field, there is not enough food to sell. When you plant many fields so that you can at least make some profit, you fail to look after them and it also dies. So you wonder which one is worse than the other. (Informal conversation, Semu, May 7, 2008)

During this busy time and shortage of labour, VEDCO delivered planting materials to farmers. Having looked at the steps that farmers had to go through to plant banana suckers, for example, it gives an idea of why farmers did not take planting materials at the time they were given to them. For instance, Keziah explained that:

The new varieties of crops [hybrids] need a lot of labour and yet they do not stay for long in the field, but we plant them because it is what the buyers want to take to the city. Cassava became sour this year, and banana plants have fallen in most fields. For my household food, I rely on local type bananas because I can harvest and leave them for a very long time before uprooting the whole plant, then I use its stems to expand the field that I already have.' (Informal conversation, Keziah, May 1, 2008)

It was due to the demand on labour that farmers did not pick up the planting materials and they explained their circumstances in the following interview:

When we tell our 'bosses' at VEDCO that we need materials to plant early, they make their own plans. Yet when they bring materials, they expect one to get them and start planting. They actually expect that rain will start and a farmer will wait for VEDCO's planting materials to begin planting! What if they do not bring planting materials? That season will have by-passed me and I cannot rewind time or rain to plant again. They do not understand that we work on time and that in farming, rain dictates timing. When VEDCO brings materials, farmers take what they can consume because they will have used most of the land to plant other crops. What comes late, will then supplement what I already have, but I can assure you that no sane farmer will leave an empty field. (Group discussion, April 20, 2008)

4.5.3.3 Price fluctuations

Farmers who were keeping poultry faced a rise in seed prices on the national market in May, which set them back. Their chickens needed food that they could not afford. Farmers like Peter could afford to make the purchases, but it cost the whole household, as he explained:

Musomesa, I tell you, today I have given up. Chicken feeds have also gone up because of price increases in maize, which is the biggest component in chicken feeds. I do not know where I am going to get maize to make my own feeds for my chickens. I had already sold my whole field out of fear that thieves would steal them from the field. And the sellers predicted that there will be no change for a while because a lot of food is needed for flood victims in eastern Uganda. (Informal conversation, Peter, June 9, 2008)

Peter had just been to town where he bought chicken feed, which had increased per bag from 30,000 to 45,000 shillings. However, prices of chicken were still the same and with reduced feeding, he would have smaller sizes of chickens than anticipated, which would translate into less income.

Another poultry farmer (Keziah) decided to let her chickens out of the chicken house, and constructed another fenced area outside for them. She purchased chicken feed as a supplement and although she was not sure if the chickens would survive, she had no choice. Eating from outside would also expose them to predators like snakes and eagles that were always hunting them down. The strategy she devised though harmful to her birds, would ensure that the chickens ate.

4.5.3.4 Lack of power to make decision on modern fields

VEDCO supplied planting materials to farmers and followed up to ensure that they were following instructions. VEDCO was only extending technical services to these farmers. But to farmers, it was conceived that the fields were owned by VEDCO. Extension workers usually came to their homes to evaluate if farmers were doing what they were taught. This was against VEDCO's explanations to farmers that the fields were theirs. Moreover, each farmer who had been given a field by VEDCO was supposed to serve as a good example to the rest of the farmers in the community. Such expectations put VEDCO farmers under a lot of pressure to deliver as instructed. The following conversation shows how some farmers valued VEDCO's opinions.

I visited a farmer who had mulched her field and followed the right procedures as taught in the group training. In an informal conversation with the extension worker, the following transpired:

Farmer (asking the extension worker): Musomesa, I wanted to know if it is ok with you to plant coffee plants in the spaces between banana plants.

Extension worker: It is ok I think, but first let them grow so that if there are side effects you do not lose your crop,

And I said: I think it is ok, this is your garden. You can decide what you want to do with the space between your plants.

Farmer: I cannot call this my garden, because if the extension workers find that I have planted their crops like I plant mine, they will complain. If anything happens to the plants they will say that it is because I did not do things right, so I should not blame them. This is VEDCO's field and they decide what to do on it. For me I just provided land. (Informal conversation, Namu, June 20, 2008)

The extension worker's comment to me was as follows: "You do not know these farmers. They want to first ask us everything, even if sometimes they do not do things as advised. They just pretend and later you find that they have done something completely different."

In a bid to follow instructions, some farmers were willing to do as they were taught, even if it increased their labour costs and demands. For instance, Kuza demonstrated how he wanted to do the right thing in the following quote:

Come and see if I have followed the instructions correctly because I want my crops to grow well. When crops get any problems along the way, I do not want you to tell me that I caused my problems because I did not do things right. You tell me if I have measured well and if I have not, I will dig up the holes again. (Informal conversation, Kuza, April 3, 2008)

Kuza, was willing to follow instructions given by extension workers on planting and managing modern crops. And Kuza was not the only farmer eager to follow instructions as Peter, the RDE excitedly told the extension work that:

Your bananas are growing very well. I am just in a process of cutting grass from the wetland to come and add on the mulch, because termites have eaten all of my mulch up. I am now measuring and expanding the size of this plantation because I want to have a big plantation. You come and see how far I have gone with expansion ... This

one is mine and solely for getting money to meet my needs and those of my family. The bananas for our food are taken from that plantation that is near the house [an old plantation, planted like the old traditional banana fields]. That is tended by my wife. (Informal Interview, Peter, April 30, 2008)

Kirya, another farmer showing us his field, explained:

You have to come and see the cassava field today, it is doing very well. You see your cassava is doing well. I have planted the dimensions you taught us (4 x 3), like you taught us and you remember that I was given these two types. Since this is not my field, I have to follow regulations and then apply my own rules to a plantation which I own. (Informal conversation, Kirya, October 18, 2007)

The experiences of some farmers like Kuza, Kirya and Peter show that farmers are willing to engage with modern knowledge as they are taught and apply it on their farms. They all followed instructions to avoid the risk of crop failure.

As per VEDCO regulations, all farmers were supposed to contribute labour to a group field. Sometimes when work increased in a particular season, farmers abandoned the RDE and he/she would have to find ways of handling all field demands. However, he/she had no powers to decide that farmers could not take planting materials, like banana suckers, from a group field, as this farmer explained:

Farmers in my group know that even if they do not work on our field, they will get suckers from the same field, because they were given to us by VEDCO. They claim the fields as theirs, but when it comes to working on them, they do not come. I have tried to call them to come and help me and they have failed to make it. I called my niece to help me before, but she cannot do that now, because other farmers want to claim the field only when it is neat and there are no weeds. (Informal conversation, James, March 13, 2008)

The explanation above was one of the major challenges with fields which VEDCO had given to groups. A single farmer, in this case an RDE, could not decide who was to take materials from a field and who could not, based on their labour input. Farmers believed that the fields belonged to VEDCO limiting their own decision making powers on the fields. Some of these farmers applied modern knowledge because that would avoid problems with extension workers. Therefore, their reasons for adopting modern knowledge were strategic.

In the previous section, I presented the life of farmers across seasons. There were issues that were specific to a particular season and there were those that cut across all seasons. The rainy season presented many risk factors, which included increased weeding, destruction of crops by hailstones, labour shortage, poor and slippery roads and increased cases of malaria. The dry season included hazards that were as a direct result of the sun, which included crop destruction, labour shortage, crop diseases and scarcity of food. I also pointed out VEDCO's role in people's lives, especially at a time when they were pressed for solutions. This presentation also illustrated the tensions, which resulted from the coexistence of modern knowledge and local knowledge at a time when people were struggling to meet their household labour demands. I will return to this in the next chapter and analyse more deeply the tensions that arose.

I will now turn my attention to showing how farmers lived through these seasons, especially examining strategies farmers developed and applied to pull themselves out of hazards. Some strategies were long-term, aimed at preventing a particular hazard from re-occurring. Others were short-term, focusing on managing the effects of a particular hazard and on surviving.

4.6 Farmers knowledge and other strategies against hazards

As already seen from the previous section, farmers encountered many constraints. Some were due to natural events and others arose out of their own family decisions. Yet other constraints were because the structural make-up of their community and external forces were major influences. What I present below are accounts of farmers' strategies to survive. For example, farmers predicted weather, dealt with soil infertility and food scarcity and other constraints. They did this by crafting means on their own, in groups or by learning from others in their communities and from extension services. In this section, I will engage with farmers' knowledge to demonstrate how they used this to protect their livelihoods from harm. This will be an important part of my study, since it will show how farmers' own knowledge is useful and challenged as an asset in livelihoods.

4.6.1 Planting more seeds than instructed

In one group discussion, it emerged that farmers were complaining about the measurements and seeds that were given by VEDCO as planting materials. When they planted based on those measurements, the seeds they were given were not enough. After a while, farmers started complaining about this shortage of seeds for the land they had. The extension workers

thought that farmers had used the seeds for purposes other than planting them. On visiting the fields, I found that most maize that was planted was growing with approximately four seeds per hole and there was no clear measurement between plants. When I enquired about this, farmers responded that:

We have a problem of squirrels, termites and rats that come and eat seeds before they start growing. So when we plant, instead of planting as we were taught (two per hole) we put at least four seeds per hole so that when vermin eat some planted seeds, at least they leave some to grow. They never eat and finish all of them, so we do not lose it all. (Group discussion, April 20, 2008)

The extension workers had visited three farmers, but somehow they did not notice this discrepancy. They were more concerned about the size of the land farmers had cultivated and using that to determine the amount of seed each farmer had used. In addition, when maize was still young, it just looked like a field of maize from top to bottom. It was difficult to tell, by standing at some distance, whether there were four plants growing out of one hole. The number of seeds planted by farmers was not determined by the knowledge they were taught. It was determined by their need to prevent all their crops from being eaten by vermin.

4.6.2 Letting vermin come into the field

The extension worker advised farmers to fence (kukugila) fields to prevent animals from coming in to destroy crops. Farmers responded:

If we fence off our fields, the same animals will follow us into our homes and start eating the food we have in our houses. We are the ones who have invaded their habitat so we have to feed them. We are the ones who have destroyed their food so we have to live with the consequences, not create more problems. (Field notes; group discussion, June 1, 2008)

In all fields I visited, even where there were signs of animals having eaten crops, there was no fenced field. When looked at from the sustainable livelihoods perspective, this knowledge by farmers demonstrates that they thought about other components of the environment. I will engage with this as a contradiction to the market/modernisation orientation in the next chapter.

Farmers had singled out bad weather as one of their major hazards. They shared some of the knowledge that they relied on to deal with bad weather, as a hazard, and explained that they acquired such knowledge from other people or through their own individual experiences.

4.6.3 Predicting weather changes

4.6.3.1 Relying on insects to tell weather

While walking in the village with a farmer one hot afternoon, we met lines of red ants across the road. The farmer noticed that I was not wearing my gumboots. Every time we found 'red ant roads' he told me to look out so they did not enter my riding gear and bite me. And he said:

They [ants] are shifting their homes, do you see? Notice that they are all moving in the same direction. The weather is going to change; I think we are going to have some major changes. Because as weather changes, you see all kinds of small insects and animals shifting from one area to another. I was beginning to think that planting my cassava was a big mistake – that rain was not going to come – but now I see that this might change after all. It is a trick I learnt from my grandmother. She used to tell us that "small animals and insects are much wiser than us you know, they sense trouble in weather before any of us humans does. Those are secrets that God kept from our eyes." In my house, we cannot burn and spray these ants away because then we will have nothing to tell us about the weather. We use leaves to channel their roads so that they do not come into the house but we do not burn them. (Observation; informal conversation, Simon, February 20, 2008)

This was one way of predicting weather changes in this community, a method that was echoed in the focus group discussion I had with members of a group in Kasaala. They were discussing their ways of knowing, which they called *amagezi ag'ekinansi*, literally meaning 'knowledge of working with nature/earth'. The farmers' discussion was giving answers to my research question, of seeing how local knowledge fosters risk management. I will discuss this extensively in chapter five.

4.6.3.2 Using the direction of wind

While having a discussion with farmers, they said that they can tell weather changes especially when the direction of wind changes. For example, a farmer had maize drying in the compound and he told his children to take it inside the house where it was being kept because, according to him, it was going to rain. I asked him how he knew that it was going to rain and he answered thus:

You see, we are located between Mt. Elgon and Mt. Rwenzori, so when winds blow from east, that means they come with sunshine. And if they blow from the west, we know that it is going to rain. We watch the winds and see from which direction they come, then we can predict whether rain will soon come or not. If you go and stand between the main house and the chicken house, where there is more wind than other parts, you will know which side the wind is blowing from. When my friend told me about this, I thought they were just guessing until he taught me how to tell the direction of wind. Sometimes we even hold something like a paper or piece of cloth that can easily be blown by wind just to be sure. (Informal interview, June 6, 2008; group discussion, June 6, 2008)

For this farmer, predicting weather was based on the direction from which winds blew, and sometimes you would hear them advise each other to remove crops that they were drying or planting because it was going to rain.

4.6.3.3 Telling weather by the appearance of the moon

Some weather predictions were based on the moon's appearance and what happened on the day it appeared, as this explanation illustrates:

When the moon appears and on the day it becomes a full moon there is no rain, we know that it is going to be a dry month. But if it rains on that day then we know that it will be a wet month and then we decide on what and in what quantities we are going to plant. For example, this month I have already planted my maize seeds. Remember the field I showed you, because at the full moon it rained, it was not heavy, but we have had some unexpected rain thereafter. Other farmers are waiting for rain in August but for me, I will be weeding then'. (Peter, July 14, 2008)

As Peter was talking to me, two other farmers with whom we were going to their fields heard what he was saying and laughed. They said that:

You think you are the only one who knows that we are going to have some rain? We have also planted maize and cassava already so that we do not miss out on an early harvest. Last time 'Mzee' told us and we did not believe and it was only you and the other two farmers who got an early harvest. (Informal discussion, July 14, 2008)

4.6.3.4 Relying on white cattle birds

Some farmers relied on white birds commonly known as enyange (egrets) which signal changing weather. They said that:

You wait, you will see that when there are many white birds in the sky, especially cattle birds circling the air around one particular place, rains will usually follow. God did not give us wisdom to tell the weather with sophisticated machines, but when we use our eyes and ears around where we live then we are able to predict what we otherwise might not have been able to see. I learnt that from my grandmother a long time ago and now I find myself looking out for the white birds to tell the weather. It is so funny because when she would tell us to look out for white birds we did not understand why she did that and we would laugh at her and just look out for the birds and call them “granny’s white birds”. When she told us, we all did not really believe, but now I find myself telling my children to look out for white birds and somehow it works. (Informal interview, Nobert, February 26, 2008)

4.6.3.5 The scent of coffee flowers

There was a group of farmers who singled out the scent of flowering coffee as a weather predictor and one of them explained that:

For me, when I smell the scent of coffee flowers I know that rain is on its way. That is nature’s beautiful way of communicating that new things are coming. You will notice that coffee will flower just before the rains and as rains come, coffee flowers give birth to seeds and later, to ripe coffee beans. Coffee flowers appear just before the rains and that rain water that comes after helps coffee plants make very strong seeds. This usually happens around early February and in July, and then rains follow. I have been planting coffee all my life and this is what we have known as coffee growers, since I started understanding what planting coffee meant to a farmer. If you have planted coffee for a long time, you will know this, because the scent is like a perfume. When we were still small, we use to hear my mother complaining when coffee was not flowering and now I understand why. (Informal discussion, Simon, March 11, 2008)

Predicting weather guided planting, harvesting and other activities in the village and all predictions made use of the life around them: the birds, the insects, the plants, the moon and the wind. And as they told me:

We have our way of doing things, but when you [educated] people come, we put it aside and do what you want us to do and when you go, we go back to our own ways,

because sometimes your things do not work out. (Group discussion, February 15, 2008)

Farmers, in their own words, told of how they interacted with modern knowledge and signalled their own agency. They made a distinction between knowledge of educated people and that of local farmers. In the end, farmers justified why they did not take on modern knowledge, showing that they did not trust modern knowledge. I will engage with the issues raised by farmers in the above quote, in chapter five.

4.6.4 Ways of dealing with food scarcity/security

Farmers developed strategies to deal with food scarcity in the present and to ensure food security for the future. They relied on different strategies to do this, some of which I will present below.

4.6.4.1 Bartering labour for food

In one village, unlike in the more urbanised villages, there were no stalls selling food or anything of the kind. However, there was trade in the form of barter trade. For instance, labour was exchanged for food, but not money. The following response by a farmer showed how they exchanged labour and other things.

My friend is here to help me plough my plot because if I do not get some help I will not finish. She has three children and in times like this, when food is scarce, looking for food for even one of them is not easy. A few days ago, she was looking for food and I gave her some of my cassava but we agreed that in exchange she would come and help me on the field. She helps me because tomorrow when I do not have food, both our children will be hungry. When she has something that I do not have, I get it from her house. It helps us women survive; otherwise I do not even know what we would do. (Informal Interview, Namu, March 4, 2008)

4.6.4.2 Keeping money versus storing food

In all villages I visited, there were very few farmers who had granaries for storing food and as they explained, the temptation of selling was too strong to resist, especially when they needed cash:

Whichever crops we plant these days, there is always someone willing to buy and that prevents us from keeping food. I have for example already sold my whole maize field because someone came and gave me money that I needed at that time. We always

need money and if I know that such a crop is eventually supposed to fetch me money why should I reject it when it is being offered? I mean, it might not come again in the same measure. (Informal discussion, Soki, Semu, Namu, May 10, 2008)

While keeping cash was also a risk reduction strategy in the sense that a farmer avoided risks like food being stolen, he/she also risked being given less than the market price. But the thinking underlying his/her action was to sell as soon as he/she could for the safety of the crops.

4.6.4.3 Storing food in the field

Some farmers planted crops that would be stored in the fields and not in their homes, as the farmer below explained:

We asked for sweet potatoes from VEDCO because they can survive long in the field. I can harvest sweet potatoes from a field for over five months because I get some and leave the rest to grow so that by the time they reach their full maturity I will have harvested a lot of potatoes from one whole field. (Informal interview, Kaala, May 10, 2008)

4.6.4.4 Trying luck at what was available

Some farmers decided to apply modern knowledge and their own knowledge as Keziah explained below:

For bananas, I also do the same. I plant in one section the local type and in the other, I plant modern bananas. Since they are all for food, it does not matter how I plant them. When I have some extra food from the harvest, I sell it to get some income for salt, but if they do not do well, I sell chickens and get some money. (Informal interview, Keziah, April 9, 2008)

4.6.4.5 Picking wild foods and fruits

In order to deal with food scarcity that was affecting most households, some farmers sent their children to pick wild foods and fruits as in the following case.

A mother was at home with her five children, peeling sweet potatoes for supper. She told the children who were coming from collecting feed for her zero-grazing cattle to hurry up and get something to eat. The children ran around and did as they are told. They went into the kitchen

and returned with jackfruit, which was picked earlier that day. They cut it up and ate it. That was their lunch, as it was late afternoon, at 4.00 pm. (Observation, field notes, January 30, 2008)

Jack fruit was available in the months of January to March when food scarcity was at its peak. From my observation, it filled in the gap for lunch in most households I worked with.

4.6.4.6 Selling labour for food

During an informal conversation, some men were lamenting how food shortages had turned their roles around to care about things they were previously not concerned with. Joseph explained that:

Food and especially sauce used to be a woman's role in a home and the man would be left to worry about big things like school fees and clothes. Now, we also have to bring together all our knowledge so that we can find sauce, especially. I go to the wetland to make bricks so that in the evening I will return with some beans, otherwise my children shall have dry food. (Informal interview, Joseph, March 15, 2008)

During the rainy season, men in one village went into brick laying to make extra income so that they would be able to contribute to buying food. Diversification allowed farmers and their families to carry out different activities and therefore diversify their risk profile.

4.6.4.7 Intercropping

In order to make sure that she had food for the future, Kaala decided to intercrop as this had practical implications, as the following description shows.

Kaala had a field of bananas and according to her, the bananas had delayed growing plantains for her to feed her family. She decided to plant cassava stems between banana plants and coffee trees at the borders of her field. VEDCO had given her planting materials (banana suckers) for the field. When we visited her field, the extension worker wanted to know why she had intercropped. He explained that it was wrong for cassava to be intercropped with bananas because according to him, bananas needed space to grow well. Kaala felt that bananas had delayed to give her food so she needed to plant some food on the same land, because she was left with no land to plant cassava. Whenever she said her bananas were not doing well, the extension worker told her that it was because they were intercropped with cassava. But

every time we came back, we found that where she uprooted cassava, she planted more in the same space. When we asked why, she explained that:

That is how I have been planting my crops for a long time, and they usually give me the right size of bananas, but also manage to give me food, so why shouldn't I intercrop? I need both crops to grow and am about to add coffee to this so that I can make some money from it. Coffee is just ready money that does not take a lot of time. (Informal conversation, Kaala, May 10, 2008)

Farmers did not do intercropping haphazardly. Their decisions about intercropping were determined by the types of crops that were to be intercropped. Farmers' knowledge on what crops would grow harmoniously can be seen in the following farmer's explanation. While going through a field of cassava, I asked a farmer why he had intercropped maize on the sides of the field and not in the spaces between plants. He responded:

When we plant maize with cassava on the same field we have to be careful. Maize and cassava have never been friends on the same field. When we plant them together, maize is supposed to be as far away as possible from cassava plants, because if the flowers of maize plants fall on cassava leaves, they will die and the root will not give a big root. My mother used to say that this was because plants that eat from their roots are stronger than those which eat from their leaves. So when both cassava and maize are in the same field, there is a lot of competition between the two plants and each uses what it has to fight. And since maize usually grows taller than cassava, cassava leaves tend to perish (Informal interview, Joel, June 2, 2008)

On some farms where farmers held Joel's belief, maize plants were planted around the main field or given their own plot. A lot of maize was intercropped with beans.

For farmers who had small pieces of land, intercropping was mainly about maximising utilisation of the land they had. Sometimes due to the need to have different types of crops for food, farmers added crops one by one. The harvest helped their families out of tough times as in the following excerpt where a farmer explained:

Bananas and coffee grow so well together and as you can see on this field, they are both growing very well. When VEDCO introduced growing of bananas, I already had coffee but coffee has to be planted with some distance between trees. When I tried bananas and coffee and they survived, I decided to expand my field. Then my wife

decided to throw some pumpkin seeds in the plantation because in times of food scarcity it helps and gives something to eat, at whatever stage it has reached. And now I have all three growing on the same field. (Informal interview, Simon, February 7, 2008)

Some female farmers practised intercropping because it allowed them to add some food for their families. For example, on many banana fields controlled by women, bananas were intercropped with beans. When they discovered that it was also a good way to avoid mulching bananas, many women adopted it on farms they had some control over. This helped them to avoid weeds growing because the beans and other vegetables they planted provided the needed land cover, as one of them explained:

Beans can be intercropped with almost anything and as long as it rains at the right time, they usually grow. We try and keep them from plants that grow and attain the same height such as Irish potatoes, onions, peas and other plants like those, because when they are on the same field they tend to compete with each other for everything. But when they are grown with bananas, maize, cassava, crops which are taller than them, they are protected a lot from many things like a lot of sunshine, a lot of water and helps keep out weeds. (Informal interview, Namaganda, May 6, 2008)

Some farmers in more urbanised areas took decisions on intercropping based on the amount of land they had available to them, as they explained in the following interview:

For me I have a plot of land, I am not a kibanja owner so I have to make sure that all crops I have fit in the space I have got. For example, I did not know that beans would grow well with bananas and coffee already in a field. I made them all fit on a single plot of land because I needed both the sauce and the other food. And they are all doing very well. (Informal interview, Vicky, May 16, 2008)

Among the farmers' strategies to deal with food scarcity, were choices about soil fertility and planting time. Planting one's crops on land that was not fertile sometimes meant losing food for a whole season. Therefore, farmers developed strategies to tell fertile from infertile soil by using different methods. This meant they were particular about where they planted crops.

For example, the experiences I present below are of farmers who associated particular colours of soil with fertility and used this knowledge to decide where to plant crops. Farmers were able to tell whether a particular type of soil was fertile enough to hold a particular crop.

In the planting season of March, farmers were planting crops in all empty fields available to them. However, one farmer was not planting yet because she said that she still needed to find land where she could plant her groundnuts. I wondered why, because around and behind her house she had some land where she could have planted groundnuts. She was convinced about the unsuitability of her available land and explained to me that:

This soil is red and it will not support my groundnuts well. You see I have planted groundnuts in this place and I have given up because whatever I do, as long as it is on this red soil, they do not grow well to produce good seeds. I will have to look for someone who will be able to give me a piece that they are not using so that I can plant my groundnuts. (Namu, March 14, 2008)

When I asked why, she said that she just plants and from her experience there was nothing that she could do that would make groundnuts grow in this soil. But the answer to this came from one of her fellow farmers who responded thus:

Red soil is bad for plants that eat from the roots like groundnuts, cassava and others. This soil does not have all the nutrients the plants need to grow because a lot of soil that is black/grey and has all the nutrients has been washed away. Our village is on a hill so most good soil goes downhill. I have had to plant my groundnuts at the top of the hill on the advice of my mother and they are doing well. Maybe that is where you might look for some land to rent. (Informal Interview, Kirya, March 14, 2008)

A group of farmers believed that there were some crops that could not be tolerated by the soil in their village. When I asked why they thought so, they responded that:

Here in our village, we know that there are crops that will grow and there are those that you have to hold your breath every time you plant them because results are unpredictable. For example, cassava, groundnuts and peas do not grow well in this southern part of our village so if you plant them, you do so at your own risk. It is only recently that farmers have begun planting cassava for example on a large scale, but even then, it does not produce big roots like in other villages. (Group discussion, March 25, 2008)

4.6.4.8 Letting the soil rest

Most farmers, even those pressed for land where they could plant, did many things to ensure soil fertility, but the most common was what they referred to as “leaving the soil to rest”. They left land uncultivated for a long time before planting anything in it, so that it could rejuvenate. When they were pressed, they used small pieces of land but never tilled the whole piece of land, as Joyce explained:

This part here is the one where I want to expand my banana plantation to because it used to have bananas, but when they were not performing well, I decided to let go of them. Now I think it has stayed for a while [evidently it was like a bush with many wild trees], and it is ready for bananas. I left the soil to first rest and get some fertility back because we had been cultivating on it as long as I can remember. I have not used it for anything for the past three years now and since the ground is now covered, I can resume planting. I will begin with bananas, since they do not need a lot of clearing of the ground. On this side I will plant sweet potatoes, because as you may know they also need somewhat ‘virgin’ soils. But also when they are growing, they keep the top ground covered and whatever comes from them when they are harvested goes back into the soil so it is kept fertile. (Informal conversation, Joyce, January 21, 2008)

In ensuring that one had a harvest, planting time was important for farmers. It was not just a matter of waiting for rain and then planting crops. As they explained in the following section, it involved more than that.

4.6.4.9 Timing when to plant

The extension worker was complaining that farmers were given sweet potato vines, which they did not plant and had instead left to rot. Yet rains had started off heavily which would have allowed their crops to fare well. As was mentioned earlier, the team leader at VEDCO was furious because potato vines were rotting and new measures were taken to ensure that it did not recur. Farmers, however, explained that it was a matter of timing when to plant:

Musomesa, can we tell you the truth? It is tricky to plant potatoes at the beginning of a rainy season. We would never plant when rains were at their peak, and that is why the vines VEDCO usually bring at this time end up rotting. When rains are still heavy and we plant vines, they just grow very many leaves at the top and very small and weak roots and yet our interest is in the size of the roots. We tend to plant many potatoes in the second season because then, rains are not as heavy as the first season, allowing

time for the roots to first develop and grow well. When a sweet potato is growing, it needs a little water just to make the soil soft for the root to hold onto the soil. A lot of rain makes the soil too soft and the plants put all their energy into growing nice looking leaves but when you harvest the food, it is very disappointing. VEDCO usually waits for the wrong time to deliver planting materials. (Group discussion, April 9, 2008)

For crops like cassava stems, farmers did not have a specific time for planting. They usually planted just before rains came, so that the stems would just start to grow with the rain. Because cassava sticks were prone to being attacked by termites, planting early helped farmers to see what was destroyed as soon as the rains stabilised or just after they had started, and replace it.

4.6.4.10 Farming in the wetlands

In one village when the sun became too hot, and cultivation became difficult because the soils were too dry to allow crops to grow. Farmers who had access to wetlands shifted most cultivation to the wetland, as in the following case.

A farmer had a group field near his house and there were three young children at home at around 1.00 pm. The banana field next to the house was so dry and the bananas looked like they would not survive through another day. Wanting to speak to the farmer about the state of the bananas, the extension worker asked the children where their parents were and they said:

Our parents have gone to Kisenyi (wetland) to dig there and they will only get back after 3.00 pm ... They always go early in the morning before the sun rises, so maybe if you want to see them you will have to find them in those fields or come later in the evening. You use your motorbike to go there; you will find them in the field. (Informal conversation, July 10, 2008)

4.6.5 Strategy to deal with the effects of hailstones

After the hailstones hit crops badly, some farmers who had remained with a few crops still standing, decided to sell them off before anything else happened to them. As one of them said:

Let me sell this cassava and get rid of these problems coming now, so that I know that that chapter is closed and I focus on other crops. I do not want to sleep and keep worrying about whether hail storms will hit my fields again, whatever price they give me, as long as it is fair to me, I will accept. (Informal interview, Soki, March 7, 2008)

4.6.6 Strategies to apply what the extension farmers taught

Some farmers developed their own ways of responding to the demands of VEDCO's knowledge to reduce hazards that would result from these demands.

4.6.6.1 Disregarding agricultural extension advice

The example given here is that of a farmer who first tried out modern knowledge on his farm and when this did not work for him, developed a new way of growing his modern bananas.

Ismael had two big banana fields and wanted to add some more banana plants on a part of the land that was unoccupied. He attended training on how to plant bananas but when we visited his farm, we found that he had left more space than he was supposed to. The extension worker asked why he had measured 'wrongly' and the farmer responded that:

You see those plants there [pointing to a field near his house], you see how they fall on each other, and it is because we left little space between them. When they fell, they brought other plants down with them. So for other fields I have decided to leave more space between them than I was doing before. (Informal conversation, Ismael, April 1, 2008)

Other farmers in the training looked to the extension worker for direction about what they should do and he told them to plant the way he (the extension worker) had taught them. He said, "Ismael has planted his crops that way because he found trouble with what we taught you in the beginning. Unless you find similar trouble, I advise you to plant bananas the way we have learnt here today." (Extension worker; training, April 1, 2008)

However, later when we visited their fields we found that four out of six farmers had followed Ismael's measurements. Farmers had disregarded what they had been taught in the training and followed what their fellow farmer had done. This confirmed what farmers sometimes did with what they were taught. Earlier on, farmers had explained that when they get extension workers, they first put their farming knowledge aside and listen to what they are taught. But when the extension workers go, they go back to their own knowledge (see section 4.6.3.5).

4.6.6.2 Weighing expenses: using fertilisers 'wrongly'

Among the ways of coping with poor soils, extension workers advised farmers to use synthetic fertilisers. Though this was contradictory to the concept of sustainable agriculture, extension

workers encouraged farmers to use synthetic fertilisers. However, sometimes farmers wanted to find ways of not doing what they had been told by extension workers. The following conversation showed how farmers sometimes changed measurements to their disadvantage. In the following case, an extension worker was advising farmers to use synthetic fertilisers for their soils, and one farmer asked:

Farmer: What if the soil where I am planting my crops has some fertility and I do not need two types of fertilisers, can't I use one fertiliser?

Extension worker: How will you know that the soil is fertile and that therefore you can buy one type of fertiliser?

Farmer: I just know which part of my land is fertile and which one is not.

Extension worker: You need to mix fertilisers in their right quantities if you want to get good results. You have to follow the rules. There are no shortcuts.

Farmer: That means we have to buy two types of fertilisers. But my soil is not so infertile, so maybe I do not have to buy all the two fertilisers. Maybe when I get money I will buy the two fertilisers. (Informal conversation, Kuza, June 17, 2008)

In the above conversation, Kuza was wondering if he could use one fertiliser instead of two, but was told by the extension worker that they had to use two. Kuza's reasons were purely economic, that he could barely afford to buy the two types of fertilisers.

4.6.6.3 Strategy to deal with recurrent weeds

On one farm, Semu was cultivating his banana plantation and was digging deep between plants so that he could get rid of older and new weeds. And he reasoned that, "When weeds are not taken care of, they grow under the older ones and as they are being removed (by use of hands), new ones which are more than the previous also start growing." Semu decided to dig to get rid of all the old and new weeds and plant beans to cover the soil so that weeds did not grow again. The extension worker was confused about the logic behind Semu's actions and he confronted him. The following excerpt of their conversation demonstrates a clash of understanding:

Extension worker: My friend [Semu], I am not sure I understand what you are doing. You have destroyed all the mulch and plant cover you have and it is raining which is going to put your field in danger of the top soil being washed away. You are digging too deep and uncovering parts that should be covered now.

Semu: Musomesa, the weeds are too much these days. We weed and before we have reached halfway, they are already up again. I decided to dig them out of the soil and make sure that all roots are out. When I do that, weeds will take longer to come back. I am tired of these weeds.

The extension worker warned him that he was planting weeds because he was busy burying seeds of weeds that were already overgrown.

Semu: When weeds disturb me, that is what I usually do and then they take a longer time to come back. (Informal conversation, Semu, October 23, 2007)

In the above conversation, the extension worker's concerns were informed by science while Kuza's actions were based on knowing that was derived from experience. This was a manifestation of how modern and local knowledge confront each other. In this case, Kuza decided to rely on his experience-derived knowledge.

4.6.6.4 Strategy to deal with shortage of planting materials

Extension workers had realised that sweet potato vines had a period where they became scarce. They observed that farmers were not keen on keeping vines to plant after the sunny season and thus devised means of making sure that farmers would have vines to plant, come the rainy season. The extension workers went around farms encouraging farmers to dig small mounds and plant sweet potato vines so that when planting time came, they would have something to plant. Farmers were supposed to channel all water that came out of washing utensils into a small plot on which they would have planted potato vines. It would be a nursery for potato vines. Some farmers disagreed with the extension worker, while other farmers promised to plant the small nurseries for potato vines but never did so. I asked them why they thought it was a bad idea and they responded, "Why would I plant sweet potatoes vines twice? Instead of wasting that time on a small plot, why can't I put all that effort on my big field?"

I explained to them that it would help them get vines to plant and they responded that:

Vines of sweet potatoes never dry out completely if they have already grown underground. As soon as rains start they sprout again and we pick them and plant them in other fields. The only thing we have to do is to make sure that we plant at the right time and we shall have more vines than what we wanted. (Group discussion; informal conversation, Sarah, June 13, 2008)

4.6.6.5 Selling without hurting existing social relationships

There were farmers who had the required amount of land and VEDCO had given them cassava plants which they were harvesting. However, by the time they were ready to sell, they were torn between two choices because their relatives had little food. One of the farmers said:

How can I sell my food to my neighbour? All my neighbours here are my aunties, mothers, children, or other relations and in our culture it is unheard of to sell food to a relative. It is inviting bad luck to strike your gardens. Even though I am short of money, I cannot sell food to anyone in this village. If they lack food and they ask me, I will give them, but not sell to them. (Informal interview, Kirya, February 25, 2008)

Trading was done with people from towns where farmers had no relatives. Kirya said to me, "I will wait for buyers to come and I will sell the whole cassava field at once so that I do not remain with any crop in my field to waste my time."

In a different situation, we were passing through fields of crops and one farmer [Sarah] had a field of tomatoes managed by her sons. As we were passing through, the following conversation took place with the other farmer [Peter] who was with us:

Sarah: My in-law let me pick for you some tomatoes so that you take home to my daughters and they cook a good meal for themselves.

Peter: Do not finish for my sons, because they have to remain with some to sell and get their money back.

Sarah: Shall we be buried with this money that we strive to get? I cannot sell my own children tomatoes. What kind of a parent would I be?

By the time we left the field, each of us had been given tomatoes for at least two meals. On the way Sarah told Peter that she did not have seeds for planting vegetables. Peter told her to remind him the next time she passed by his house so that they would share a packet he just bought from town. (Field notes, July 1, 2008)

From observation, if one found a farmer selling some things on the road side and one was related to such a farmer, they would insist on giving the produce to you, especially if they were picking from their own gardens.

For example, Alice, had a road side stall where she sold tomatoes that she grew herself, cooking oil and some onions she bought from town. As we passed by, she called us and asked the children to pick some tomatoes that were left in the basket and to give them to us so that we would take them home. We objected saying that they were for sale. She told us that she would pick others and insisted that we take them. We told her that since we found them at a stall, we could give her money in exchange and she refused, saying:

That is my daughter [referring to me] and you [the extension worker] are my son, I cannot start selling you food. Selling to you will not make me die from hunger or poverty, I will go and pick for you if you do not want those tomatoes on the stall.

We then told her that we would take them with no further objections (Field notes, July 9, 2008). Farmers' explanations and experiences as revealed above suggest that farmers intentions were to sell what they harvested. However, personal relations were considered more important than the income expected. As much as they wanted to get income, they also wanted their relations to remain intact with family and other people. This is suggestive of the orientation of livelihoods in which people put their social relations first, which is in direct contradiction of the market approaches in which income is put first. I will handle this later in chapter five as an emerging contradiction when I make sense of the findings presented.

4.6.6.6 Strategies to deal with shortage of labour

When the rainy season was at its peak and there was huge labour demands, farmers employed different strategies depending on the resources each had at their disposal. Worth noting in the excerpt below is the difference in the strategies according to gender. The cases presented below show cases of two farmers who handled shortage of labour in two different ways.

Kirya is a farmer involved in different agricultural activities. He had many fields and sometimes was overwhelmed by work as he explained below:

As you have been seeing my fields, I try to plant crops that bring me money and also engage those that will provide food for my family because my wife is unwell and has been so for a while now. She had to go to the city for treatment.

When rains started in March 2008, Kirya's fields of groundnuts, vegetables, cassava, maize, beans, sweet potatoes and bananas were all covered in weeds. All of them were planted on plots of two acres or more, with the cassava garden being the biggest on four acres. He had

hired two women from the village to help with weeding. He was also planting some banana suckers and sweet potatoes. His mother had come to help with the workload at home, especially cooking. He had no children at home and he said that some of his children were in the city and others were still in boarding school. He also had some young chicks that he had been given by VEDCO that he had to take care of. In some parts of the banana plantation he had decided to slash weeds down because he could not find any labour to help weed faster than the weeds were growing (Informal conversation; observation, March-May 2008).

Judith is another farmer, who was facing a challenge of finding labour to help her on her fields. She told me that:

My sweet potatoes, bananas field, beans and groundnuts are all covered in weeds. My husband has also gone to work on his fields with his friend because weeding is everywhere. And yet there are some crops that I have to plant before the rains stop completely. If I had money I would have hired some people to help me do some of the work, but labour is also scarce these days (informal interview, 10 March, 2008).

Every day they worked on one plantation after another, but at any one time all three would be on one field. They helped each other with their labour demands, as they explained, "If we could finish this field quickly, I would pay back what they did for me. That would give me time to come back to this field before the weeds grow again." (Informal interviews; observation, March, 10-18, 2008)

4.6.6.6.1 Children providing labour

As soon as school holidays started, parents were relieved because some of their labour pressures were eased, especially for women, as these findings illustrate:

My children are back from school and now when we descend on a field, finish all the weeding we have to do. They know that we have got to complete this before weeds start growing in those parts we have finished. And they also help with chores in the house so I have more time to spend doing other things. (Informal interview, Becky, May, 14, 2008)

4.6.6.6.2 Visitors providing labour

With increased scarcity of labour, farmers explained how their relationships had changed to accommodate labour needs:

In our homes now we can no longer have visitors who stay for long. If they come to visit and they stay for three days, on the third day they will have to get a hoe and dig or I will be forced to send them home. And visitors, from what I have observed, do not come to sit and go back home. They also sometimes come over to help during the tough times. It is not like it was in the past where you would have a visitor staying for a whole week and never stepping in a kitchen. (Group discussion, July 15, 2008)

The strategies devised by farmers to handle labour shortages were as diverse as the assets they had. While VEDCO was concerned with farmers lack of enthusiasm at adopting modern technologies, it did not consider the challenges that farmers faced. Women tended to rely more on their social networks for many challenges, while men relied on financial assets.

4.7 Conclusion

In this chapter, I have described, with rich detail, the organisation where I carried out my field work. I explored its programmes, the purpose of them and how they are implemented. I also examined the historical context of VEDCO to enable us to understand how current programmes came about. In the last section I examined farmers' lives in rich detail. I presented their current activities, the hazards they faced, and how they negotiated their way through the hazards. Looking at this, it is difficult to imagine that they had livelihoods because they seem to be engulfed in their own hazards. But they managed these hazards in ways that made everything in their environment useful and meaningful to their existence. More importantly, I showed that the way they interacted and interpreted any form of knowledge was influenced by their need to survive.

In the next chapter, I will relate these findings to the literature in order to develop a discussion around the themes of livelihoods security, knowledge, resilience and risk reduction. The intention of the discussion will be to relate what I have presented in the findings with the literature in chapter two. This will enable the findings to inform some aspects of literature and develop a deeper understanding of knowledge in livelihoods security. The overall aim will be to use the discussion to answer the research questions that guided this study.

CHAPTER FIVE

A DISCUSSION OF THE FINDINGS

5.1 Introduction

This chapter engages in a discussion of the findings presented in chapter four. It starts with a discussion of what poor people's livelihoods are built on. It explores how their cultural base, diverse property ownership and local knowledge and practices form the foundation of poor people's livelihoods. Exploration of livelihoods is done in the context of the risks farmers face to understand why they take on the strategies they adopt. The next section is centred around understanding VEDCO's interventions in the context of livelihoods and risk presented in the first section. The section after VEDCO's intervention addresses the role of systems and structures in increasing the risk profile of farmers. The last section engages with the risk theory developed by Giddens (1998, 2000) and Beck (2000) to understand how a farmers' subsistence society eventually becomes a risk society.

5.2 What are poor people's livelihoods built on?

5.2.1 Strong cultural base

In this case study, farmers described their historical relationship with food and the purposes that production of food, both as a process and as a product, played in their lives. The respondents described how their cultural leaders prioritised food security, how households implemented policies on food security, how food security was monitored and what it meant to them. In addition to the political context of food security, they also described processes of ensuring food security for future generations as a cultural obligation:

... the king ensured that every household had three fields ... Crops from all fields were consumed by members of such a household (taken from the life story).

When Saza(county) chiefs visited the people ... members of that community would give some matooke to create and maintain a relationship (taken from the life story).

... when a woman gave birth and it was a baby girl, the placenta was taken and put in the soil where their nakitembe grew... The bananas were eaten by the grandparents of the same girl when she grew up taken from the life story).

... when the bride went to live with her husband, the first meal that she served her husband was made from bananas (taken from the life story).

The above statements from the life story reveal that the cultural institution of the Baganda valued food for self-provisioning, production as a relationship-building process and production as a process of maintaining life. Growing of food was a cultural process that was part of wider communal structures.

Historically, Baganda culture valued self-provisioning, which was emphasised at all levels of the community and followed up by leaders. This communicated to the people that production for their own consumption was an important purpose of production. Emphasis on production for self-provisioning has been emphasised by Roberts (2008) and Shiva (2001) as the basis for livelihoods' security. Therefore, by putting emphasis on having food in homes, leaders were in the process of ensuring livelihoods' security. By emphasising food security, leaders were responding to the biggest challenge and most basic need of poor people, which is, securing food for their respective units. Implicit in the same culture that valued self-provisioning was a communal value of social relations that created an environment for mutual assistance. The importance of social relations to poor people is best described by von Kotze (2009, p. 6):

In the world of the rich and comfortable this translates into insurance policies and the like; in the majority of the world, it means all those actions that people undertake in order to expand their capacities to cope and create safety nets for emergencies, rather than simply waiting for the delivery of commodities and services ... In rural areas – whether in subsistence production oriented towards food security or cash crop raising – there is mutual assistance out of the recognition that economic activity is not an individualist solo act but involves others.

In this case, since the economic activity was majorly growing of food, food became a means of expressing themselves to those they engaged in relationships with. Food was given to strangers, to in-laws and to any other people as one deemed fit. Food provided the means to create relationships and maintain them. According to Bush (2007), social relations form the web that strengthens peasant communities, making it one of the most important structures of the community. It is those relations, when woven together that provided the means to escape different forms of insecurity. Bush's view (*ibid*), therefore presents social relations as part of the

wider context of production. The focus of production is not the product alone, but also the process of producing that product. Work is defined within a particular cultural context of relations, an example of which is given by Hart (1992) as subsistence work. While explaining the concept of subsistence work, Hart (1992, p.1) said:

Work never simply signifies strictly economic realities, but always contains a net of relations into which the entire range of human experience is woven. Even more importantly the way work is organised, the actual form it takes, and the relations it establishes ultimately express the way a society structures its relationship to nature-a relationship which is the very foundation of all other relations: of human beings to each other and to themselves

The above explanation given by Hart and the experiences of the respondents emphasise that work, in this case subsistence work, forms the basis for relationships between people and nature. It is through those relations that humans gain the experiences they have in relation to nature. It is through such work experiences that knowledge is produced and reproduced, making a strong cultural base imperative for meaningful learning experiences. Such meaningful experiences are a product of how work is organised in relationship to nature.

The findings and statements shared by farmers also show a cultural relationship to nature that was aimed at maintaining life. This is revealed by the symbolic ritual of putting the placenta back in the soil to ensure that food was produced for the next generation. The ritual was rooted in subsistence work and embraced the whole concept of sustainable development (Chambers & Conway, 1991). People were giving back to the environment so that it could be renewed and support the next generations (Youngman, 2000). The part that was put back in the soil was the placenta, locally referred to as 'nabbana' (meaning-mother of all children). Once again, life, work and production were woven together in that one activity with the sole purpose of maintaining life. The subsistence work done by farmers was therefore based on a conscious and positive acknowledgement that the ultimate purpose of work is to maintain life (Hart, 1992, p.178). Based on farmers' experiences and how they interacted with their work, it is important to note that:

With its (subsistence work) overall orientation towards use and life, and with its preserving rather than destructive attitude, subsistence labour can serve as a model for a truly human vision of work and life (Hart, 1992, p.177).

What is being suggested by Hart (1992) above is that work and life ought to be informed by the basics of subsistence work. That is to say, the purpose of work will have to be revisited to make it people-centred. From this case study, it will require an understanding of the cultural context, which defines what work is and how it is organised.

While the action of putting the placenta in the soil could be looked at from the sustainability perspective, it can also be argued that it represents the spirituality of now-western ways of knowing, to emphasise the spirituality basis of African epistemology (Merriam & Kim, 2008). However, it would go beyond the scope of this study to exhaustively cover the spirituality issues of African epistemology. Therefore I will concentrate on the major purpose of this study and engage with how a strong cultural base impacts on risk.

In the context of risk, culture provides the framework within which risk reduction measures are taken. The values of self-provisioning, social relations and maintaining life were all aimed at avoiding the risk of livelihoods' insecurity. Self-provisioning, as argued earlier is the basis of a secure livelihood (Shiva, 1993). This is evident in the study where we find that those who could produce their own food, were at a lower risk of livelihoods' security. For instance, Karono who had fields where she could grow food, faced stresses like other farmers but she was able to recover because her source of food was intact. When her bananas were attacked by the leaves disease, she did not go hungry because that field was not her only field. The fact that she had other fields and activities provided a buffer against hunger.

The above analysis does not only explain the importance of culture to livelihoods, but it also underscores the activities that are rooted in cultural processes. We have seen that culture defines work and organises work to make it meaningful to life. It is through the organisation of such work that meaningful knowledge, with a high use-value, is constructed. For any endeavour that seeks to work with a particular group of people, it would be important to engage with the cultural context.

5.2.2 Production through diversity

The nature of production that farmers were engaged in showed that they had a variety of activities and crops that they grew. Diversification is evident in the activities that farmers carried out (see section 4.4).

Some farmers, like Kaala below diversified their strategies:

That is how I have been planting my crops for a long time, and they usually give me the right size of bananas, but also manage to give me food, so why shouldn't I intercrop? I need both crops to grow and am about to add coffee to this so that I can make some money from it. Coffee is just ready money that does not take a lot of time (Informal conversation, Kaala, May 10, 2008).

In the words of Vicky below, we find a justification for diversifying crops:

For me I have a plot of land, I am not a kibanja owner so I have to make sure that all crops I have fit in the space I have got. For example, I did not know that beans would grow well with bananas and coffee already in a field. I made them all fit on a single plot of land because I needed both the sauce and the other food. And they are all doing very well (Informal interview, Vicky, May 16, 2008).

The findings suggest that people diversified their activities and strategies because they had no choice and because they were working with limited resources. Some farmers wanted to be able to earn an income from the diversity of activities. For others, planting many crops on one field allowed them to diversify by making maximum utilisation of the small pieces of land they had. According to Shiva (1993, 2001) diversity is a poor man's strategy to ensure stability. Shiva, in support of diversity, argues that:

Diversity is the characteristic of nature and the basis of ecological stability. Diverse ecosystems give rise to diverse life forms, and to diverse cultures. The co-evolution of cultures, life and life forms and habitats has conserved the biological diversity on this planet. Cultural diversity and biological diversity go hand in hand (1993, p.65).

The explanation given by Shiva shows diversity goes beyond one's farm to impact on the environment around a particular farm and beyond. It is through diversity that life is reproduced and maintained. Madeley (2002, p.139), emphasising the environmental contribution of diversity, explains:

A diverse variety of plants, both wild and cultivates, is essential if crops are to be developed that yield more, resist pests and disease, and tolerate harsh environments.

The diversity is an essential link in the food chain – it is the base for increased productivity as it gives humankind the capacity to adapt and develop crops for the future.

Therefore, destroying diversity would eventually destroy poor people's livelihoods and experiences.

At an individual level, diversity ensures a variety of nutritious crops, grown on a small piece of land. This is exemplified by the strategy developed by Vicky who decided to plant many crops on one plot of land because she had a small piece of land. Her total output would include bananas, beans and coffee all produced from a small piece of land. According to Shiva (1993) and Madeley (2002), such actions matter to food security because they contribute to the variety of the total food output. Viewed in this perspective, diversity has the capacity to partly ensure food security, defined as a situation where "all people at all times have ... access to safe and nutritious food ..." (Løvendal & Knowles, 2005, p.3). Food security is achieved through the multiple outputs and yields which flow back within the system to allow for "low-external-input production" (Shiva, 1993, p.77).

However, it is important to note that promoting diversity is still a challenge especially when faced with modernisation that promotes high yielding uniform crops. Shiva explains why diversity is being marginalised:

According to the dominant paradigm of production, diversity goes against productivity, which creates an imperative for uniformity and monocultures. This has generated the paradoxical situation in which plant improvement has been based on the destruction of the biodiversity which it used as raw material (1993, p.70).

The explanation given above shows the livelihood systems based on diversity are in danger when faced by monocultures. The biggest contradiction according to Shiva is the destruction of the basis of production, that is, diversity. In addition to the cultural base that I examined previously, diversity also stands out as part of the basis of poor people's livelihoods.

In terms of risk, the diversity was a strategy to narrow the risk profile. As Shiva (1993, p.76) explained: "systems based on diversity are associated with decentred self-regulation and high

resilience". Even if farmers in this study diversified and still remained prone to risks, diversity sometimes enabled them to escape risks. For instance, farmers who intercropped maximised food harvested and made maximum use of their land. Some farmers who had small pieces of land intercropped so that they would maximise on the total output from their land. In terms of diversifying activities, farmers who had several fields were able to escape livelihood insecurity by engaging in other activities that enabled them to buy food. Some people who had land in wetlands were able to reclaim it and use it during the dry season, ensuring that they would have a harvest all year around. Overall, the diversity in strategies, activities and farm outputs contributed to livelihood security. This in turn informed the variety of educational activities that farmers were engaged in informally and formally.

5.2.3 Property ownership

Farmers in this study described situations where property ownership presented as an important part of their lives. In their lives, property ownership influenced and was influenced by the activities and strategies they devised against insecurity:

... I have lived on my brother's land, now he has decided to sell (taken from informal interview with Keziah, June, 10, 2008).

Most of us in this village are not 'bibanja' owners (landlords)...sometimes we rent land but it is difficult to find land one is not using (excerpts from a Group discussion, Kasala, February 22, 2008).

When a man has helped me and given me somewhere to grow food, I cannot turn around and him for anything else (informal conversation, 2008).

I even gave my wife her own land and plantation so that she does not turn around and say that she had no land so that she had no land and/or to grow food (Informal interview, March 11, 2008).

The farmers' narratives above shows the extent of insecurity as a result of land tenure but more importantly the narratives give the different faces of how property ownership among the poor destabilises their livelihoods.

According to Madeley (2002, p.80), “there are millions of rural people who are either landless or work small plots on which they have no security of land tenure ... Such people with no land rights are among the poorest of the poor”. This can be understood from the entitlements perspective suggested by Sen (1976). According to Sen (1976, p.1), “People’s ability to survive in an exchange economy depends on the system of exchange entitlements and if the entitlements change in a way as to exclude a lot of people from the ability to acquire food, a famine results”. What Sen means and which also this study found out is that access to resources is not a given. There are structures and policies that make it possible to use land and to share in the food that is produced. Sen gave an example of food availability in India and argued that India has had no famine since independence. The last famine in India was the Bengal famine of 1943 (Sen, 1989). Sen is also quick to point out that the reason for this positive development is not because India had tremendously increased production of food, but because the public distribution system has been fashioned in a way that whenever hunger looms, people have systems to fall back on. This puts ownership rights and entitlements at the heart of livelihoods security for the simple fact that land tenure security ensures immediate food provision, enables access to credit for the poor, and enables people access to extension services as evidenced in this case study.

Land security and immediate food provision

Land rights meant that one could put a piece of land to any use or activity as desired. Those who had land were able to plant a variety of crops. For example, Simon planted bananas, coffee, pumpkins, cassava, sweet potatoes and maize. He was at liberty to plant crops for food and for cash. By having land to plant all the crops they wanted to plant, some poor people were assured of never going hungry.

Ironically, those who had little land were practicing what has been described as sustainable agriculture (Madeley, 2002). For instance, some intercropped to maximise all the space that they could find. On the other hand, those who had land planted crops that subscribed to the monocultures (Shiva, 1993). For example, they were encouraged to plant big fields of cassava or bananas or potatoes, each on its own field. But on the whole, when located within the context, the case study suggests that poor people with property rights are likely to engage in producing for self-provisioning because they do not have all crops competing for the same space. This ensures that property rights sometimes are the mediating factor between hunger and food security.

Security of land tenure and access to credit

In addition to food security, security of land tenure was security in itself because the farmer was at will to get credit. This was because land was the only permanent asset that could be used as collateral to borrow. According to Madeley (2002, p.100), “many resource poor farmers do not have access to credit or savings facilities. The use of credit in form of a loan from a bank, or other finance institution can help their farming activity”. Considering that in this case men were the majority of the landlords, this meant that women’s chances of accessing credit facilities were next to none. Therefore as a mechanism for ensuring livelihoods’ security, access to credit facilities was not an option for some poor people. This did not only hamper women’s strategies out of poverty, it hampered survival of the whole livelihood system.

Security of land tenure and access to knowledge

In this case study, it was revealed that having land access and control assured the farmer of gaining access to extension services. This was because extension workers tended to visit where there were fields supported or where there was potential for application of modern knowledge acquired. Extension workers were concerned about their agenda. This demonstrated the importance of land ownership to both poor and rich people. Land was a primary resource that had to be there for extension education and inputs to be given to farmers. Ability to access knowledge on agriculture automatically separated the farmers into two sections, those who had land and could access and apply knowledge and those who did not have land, the poorest of the poor (Madeley, 2002). This reveals that agricultural extension education was accessed by people who already had some resources, which is a contradiction in itself because the assumption was that it was the poor who needed agricultural extension services. This did not mean that they did not have to produce because from the narratives given, the women made it clear that the whole family would be asking for food from them.

5.3 Local knowledge and practices

In this case study, emphasis was put on understanding local knowledge and practices which enabled farmers to carry out their activities and increase their security. Findings revealed that farmers produced and valued knowledge that would help them to avert risk. Most of the

knowledge, which farmers applied, was in response to a hazard or to secure a livelihood, as evidenced below:

They [ants] are shifting their homes, do you see? Notice that they are all moving in the same direction. The weather is going to change; I think we are going to have some major changes. Because as weather changes, you see all kinds of small insects and animals shifting from one area to another (extracted from observation; informal conversation, Simon, February 20, 2008).

You see, we are located between Mt. Elgon and Mt. Rwenzori, so when winds blow from east, that means they come with sunshine. And if they blow from the west, we know that it is going to rain. We watch the winds and see from which direction they come, then we can predict whether rain will soon come or not (Extracted from Informal interview, June 6, 2008; group discussion, June 6, 2008)

When we plant maize with cassava on the same field we have to be careful. Maize and cassava have never been friends on the same field. When we plant them together, maize is supposed to be as far away as possible from cassava plants, because if the flowers of maize plants fall on cassava leaves, they will die and the root will not give a big root (Extracted from Informal interview, Joel, June 2, 2008).

This soil is red and it will not support my groundnuts well. You see I have planted groundnuts in this place and I have given up because whatever I do, as long as it is on this red soil, they do not grow well to produce good seeds (Extracted from Informal Interview, Kirya, March 14, 2008).

The responses above demonstrate farmers' deep understanding of local soil, crops and weather-patterns. The understanding is demonstrated by the ways in which farmers look for and use behaviour of insects as early warning signals for impending changes in weather (ants), study plants to discover which ones are good 'companions' (such as groundnuts and maize), or poor companions such as cassava and maize. Farmers' decisions about what, when and where to plant are based on 'research' through observation and experimentation. Farmers' decisions are underpinned by considerations of risk aversion through the strengthening of local

capacities and resources. I will focus my next discussion on the characteristics of farmers' knowledge that has strengthened farmers' capacity to withstand hazards.

5.3.1 Livelihoods: A basis for local knowledge

Firstly, findings suggested a high connection between local knowledge and livelihood activities. This connection gave local knowledge meaning to farming as an activity. I have already explained that the major livelihood activity of farmers was crop farming. In the narrative given, knowledge was related to predicting weather, which has already been presented as a major challenge to subsistence farmers (see Deveruex et al, 2001). In the Joel's narrative, intercropping is justified. The reason for being cautious was the need to minimise crop failure. Then in the last narrative, the challenge of soil infertility is explained. In addition, knowledge was applied immediately. The actions by farmers tend to identify with Fasokun et al's view (2005) that the knowledge farmers revealed, identifies with learning in an African context. Fasokun and others pointed out that "learning in the traditional African context of knowledge and skills acquisition has always been an active process for people, where they were expected to put into practice what they have learned almost immediately" (2005, p.64) .

However, the findings seem to suggest that the actions of farmers were not just about African indigenous knowledge systems. Rather, the farmers' actions spoke to the usefulness of local knowledge, that is, how much local knowledge contributed to enabling the success of the activities that people were carrying out. It was about how much knowledge contributed to the development of people from a state of poverty to a better life. Such knowledge according to Palmer et al (2001) would be considered as 'worthwhile knowledge' because it has a definite purpose to a person who has acquired it.

The argument above and based on the findings draws me into a deeper level of understanding of what constitutes knowledge and what the purpose of knowledge should be. Freire argues that, "knowing at whatever its level, is not the act by which a subject transformed into an object docilely and passively accepts the contents others give or impose on him or her. Knowledge, on the contrary necessitates the curious presence of subjects confronted with the world" (1973, p.101). What Freire means and in the context of this study is that knowledge is actively constructed by people engaged in an active process. People involved in the knowledge creation process tend to question their world and work towards overcoming its challenges. The

knowledge creation process involves negotiation, invention and re-invention (Freire, 1972). By negotiating and re-inventing, people learn new ideas and overcome their challenges. This view challenges the common [modernist] notion that worthwhile knowledge must be acquired away from activities aimed at self-provisioning. Findings have shown that as poor people are confronted with challenges from within or from outside their communities, they devise means to face their challenges. It was in the process of overcoming challenges that people constructed knowledge useful to their lives.

However, constructing knowledge from poor people's challenges does not mean that other forms of knowledge are not useful to everyday lives of the poor. Rather it leads us to question what is worthwhile knowledge in the context of erratic weather, increasing soil infertility and other similar challenges faced by subsistence farmers. Such a perspective causes us to ask whether subsistence farmers need to look further than their own livelihoods to learn about farming. It is going beyond the mere critique against local knowledge and interrogating it to understand the reason why local knowledge is based on the livelihood context of poor people. Partly, this is to acknowledge that local knowledge, like any other form of knowledge has some limitations.

Adult education should therefore acknowledge that knowledge production is a highly dynamic process operating in a dynamic environment. The environment is changing all the time, for instance with climate change hastening the process. We all have to learn not only to adjust, but also to anticipate. Farmers have to learn new things that are beyond the environment within which they are living. Such new skills will work towards enabling them to anticipate and prepare for events, hence risk reduction.

5.3.2 Contextual embeddedness

Secondly, the responses also reveal that local knowledge was embedded in a context. Contextual embeddedness was significant because it provided the space and time for knowledge construction and application in a way that made sense to the social, cultural and physical environment. For instance, the interpretation given to the movement of ants is based on the understanding of the behaviour of ants in that physical environment. Within the same environment, an explanation is given for why ants cannot be burnt or killed. Based on the farmers' explanations, what stands out is that local knowledge being contextually embedded has formed a basis for livelihoods' security. Local knowledge derived its usefulness from the

context within which it was applied. It was in sync with the farmers' way of life and their challenges. According to Palmer et al (2001), this local knowledge could also be referred to as worthwhile knowledge because it was relevant and useful to its holders. From the livelihoods' perspective and based on the usefulness of local knowledge, its usefulness has enabled farmers to anticipate and avoid risks, hence increasing their resilience.

Nevertheless, we must remember that the attribute of contextual embedded-ness has formed the basis for some sharp criticisms that have been levelled against local knowledge. For instance, according to Briggs (2005), "there persists the uneasy feeling that somehow these knowledges [local knowledge] are too place-specific to be of much theoretical value or, indeed, of much development value beyond these particular locations" (2005, p.101). When there is no economic value or universalising 'truth' associated with local knowledge, the tendency is to approach it as a useless construct.

Given the context in which the poor live, could we then argue that knowledge is supposed to serve a purpose when working against poverty as the major goal? In this case study for instance, there is significant value put on the use-value of knowledge regarding livelihoods' security. This does not mean that the poor do not value formally acquired knowledge because as the findings showed, most farmers spent most of their income on educating their children in formal institutions. Rather, what the findings suggest here is that the nature of activities we get involved in are what influence what should or should not count as worthwhile knowledge. In the lives of poor people, their whole knowledge and survival system is biased towards survival. Their epistemology is also bound to be biased towards survival resulting in what I could call knowledge for survival or a survivalist epistemology. Some scholars have actually argued that all knowledge is contextualised within a particular context, a view which findings of this study have also upheld (see Briggs, 2005). For instance, modern knowledge, which is the 'scientifically legitimate' form of knowledge is also contextualised within modernity and suffers the same fate as local knowledge when taken out of context.

What the findings ultimately show is that all knowledge is valued by different people depending on how useful it is to them and the environment around them. For farmers, useful knowledge is that which they can use because it increases their farm output. An increase in the output means that they will keep away some hazards, hence an increase in their resilience and eventually livelihoods' security. Even though other people want to universalise claims about

knowledge, it is clear here that knowledge which might work in one situation might not work in another situation.

5.3.3 Informal acquisition and application

Thirdly, findings suggested that all knowledge and practices, which farmers had at their disposal, was both acquired and applied informally with a variety of people functioning as 'teachers'. The following extracts evidence such informal acquisition and application:

... It is a trick I learnt from my grandmother. She used to tell us that "small animals and insects are much wiser than us you know, they sense trouble in weather before any of us humans does" (Observation; informal conversation, Simon, February 20, 2008).

... When my friend told me about this, I thought they were just guessing until he taught me how to tell the direction of wind. Sometimes we even hold something like a paper or piece of cloth that can easily be blown by wind just to be sure (Informal interview, June 6, 2008; group discussion, June 6, 2008).

... I learnt that from my grandmother a long time ago and now I find myself looking out for the white birds to tell the weather. It is so funny because when she would tell us to look out for white birds we did not understand why she did that and we would laugh at her and just look out for the birds and call them 'granny's white birds' (Informal interview, Nobert, February 26, 2008).

The narratives above show the kind of knowledge that farmers informally learnt from past generations and from friends. There was no specific place where this knowledge was to be attained; any place could be a learning venue as long as there was a group of people. In addition, there were no written rules and procedures governing the knowledge acquisition or application process.

According to Fasokun et al, "African indigenous knowledge is informal and the process of learning takes place from day to day by experiencing the subject matter as an integral part of the actual living conditions of the people" (Fasokun et al, 2005, p. 111). Fasokun et al's argument in the context of the findings means that local knowledge in the African context is handled as an informal venture. The content to be learnt is part of people's experiences,

activities and conditions. Going beyond the African indigenous knowledge systems, the informal nature of local knowledge of poor people has been commended by Nyerere. Nyerere explains that as an integral part of people's lives, knowledge prepares people to live and survive in their community (Nyerere, 1982). According to Nyerere (1982), it is the informality of the knowledge acquisition and application process that makes it relevant to the life of the community within which it is applied.

According to Fafunwa (1974, p.17) however, the informality of local knowledge has also provided a basis for denigrating local knowledge as 'primitive, savage and barbaric'. The reason for such denigration is because when knowledge is acquired informally, there is no recognition for it when compared for instance, to scientific knowledge. And because of lack of recognition, Briggs (2005) argues that, local knowledge is also regarded as useless when measured by how much it contributes to economic development. Besides, it is seen as highly subjective and marred with human influence as opposed to the more objective, universal scientific knowledge. However, in the context of livelihoods of poor people, the findings suggest that local knowledge contributes to the strategies that poor people devise to deal with every day challenges. Therefore, the informal nature of local knowledge is presented as part of a whole livelihood system based on informality with the sole purpose of reducing risk to their livelihoods.

5.3.4 Holistic

Fourthly, the knowledge that farmers were using revealed that it was holistic in nature. By holistic, here I borrow the concept from the ecology movement to mean a view of the world that "allows one to insist on the priority of the whole without vitalist overtones, which it acknowledges an autonomous role for the parts without, however, relinquishing the idea of a supra-individual reality" (Sachs, 1992, p.31). The holistic characteristic was evident in farmers' practices as evidenced below:

... So when we plant, instead of planting as we were taught (two per hole) we put at least four seeds per hole so that when vermin eat some planted seeds, at least they leave some to grow. (Group discussion, April 20, 2008)

... If we fence off our fields, the same animals will follow us into our homes and start eating the food we have in our houses (Field notes; group discussion, June 1, 2008).

... In my house, we cannot burn and spray these ants away because then we will have nothing to tell us about the weather. We use leaves to channel their roads so that they do not come into the house but we do not burn them (Observation; informal conversation, Simon, February 20, 2008).

Based on the above narratives, findings demonstrate a holistic relationship between farmers and the environment around them. They demonstrated a philosophy that has been associated with non-western ways of knowing as holistic thinking (Merriam & Kim, 2008). The holistic principle that we see displayed here is one that does not prioritise the human over other living organisms. The ants, the vermin and other animals were deliberately given food so that they could also survive. Furthermore, it is clear that farmers took care of the needs of other organisms so that they would harvest food. Their actions speak of risk reduction strategies in that instead of waiting for their crops to get destroyed, they instead prevented such destruction. They took care of the animals before they could get to their fields. It was within this holistic thinking about livelihoods that knowledge was constructed and learnt. Knowledge was acquired as part of a whole livelihood system with minimal fragmentation.

However, according to Briggs, it is this principle of holistic thinking that leads to local knowledge being subjective. Briggs argues that when local knowledge cannot be separated from activity, it breeds theoretical confusion. However, this critique is based on the construction of scientific knowledge in which, for knowledge to be called worthwhile, it must be stripped of all human influence and activity; making it neutral and universal (Carr & Kemmis, 1986). While the assertions by Carr & Kemmis (1986) might be true in the context of scientific knowledge, there must be acknowledgement in epistemology that not all knowledge is constructed in the same way. There is need to recognise that for instance, local knowledge, irrespective of the process of its validation and construction is also worthwhile in the sense that it helps those who have and use it. Furthermore, considering that for poor people, life is a whole and not compartments or separate components, it is important that we understand that most of their knowledge will reflect the way their lives are organised. It is up to agricultural extension education to realise and reflect farmers' thinking in their own extension education programmes.

From the discussion on local knowledge, we have seen that farmers' knowledge is based on their livelihoods, is embedded in that local context, is informally acquired and applied, and holistically embraces all aspects of the farmers' environment. Findings have revealed that the characteristics of local knowledge as discussed above have resulted in helping the farmers to avoid, prevent or cope with risk hence increase livelihoods' security. In the next section, I closely examine how the resources I have discussed so far, affected livelihoods' security.

5.3.5 Uncertainty

The findings in this study revealed a lot of uncertainty. For most of the time of their lives, it was evident that one of the foundations of planning and living for poor farmers is negotiating with uncertainty as evidenced in the narratives below:

... Chicken feeds have also gone up because of price increases in maize, which is the biggest component in chicken feeds. I do not know where I am going to get maize to make my own feeds for my chickens. I had already sold my whole field out of fear that thieves would steal them from the field... (Informal conversation, Peter, June 9, 2008).

... Our worst nightmare is hailstones. There is no warning, there is no escape and every field, be it bananas, maize, or cassava, the young or old ones, are destroyed by hailstones. Even if we always know that it will come over the rainy season, we cannot know or predict the damage it will cause (Group discussion, March 15, 2008).

... Do you see the beans I planted the other day, expecting to harvest some food for my family to eat? The leaves are dry and have turned yellow due of lack of water. The rain got finished as soon as I had planted so the plants only managed to come out of the soil (from an Informal conversation, Peace, June 24, 2008).

... We have now resorted to finding some of the stems on the ones that we had and were sure about. You would look at your family and you know you have no food and wonder what you are going to do with a useless field full of mature but sour cassava (Informal conversation, Namu, April 15, 2008).

'...I cannot even say that by the time the season is over it will still be ok. If cassava ceases to be the crop that saves us from these long hunger spells, I do not know what

we are going to do. Imagine, the one I planted last year is already getting sour again (Informal interview, Karono, February 21, 2008).

Findings above suggest that farmers' lives are marked by uncertainty and high risk and the precariousness of their conditions gives rise to a range of coping strategies that are informed by an understanding of how to negotiate dangers and minimise potential risks involved.

Among the uncertainties, findings also reveal how the global food distribution impacts on local farming. In this case we see that while the farmers felt the price increases, they did not know why or how it was related to global economic pressures. Although farmers were not directly involved in international trade, their participation in farming and agriculture led them into experiencing the effects of international trade. By so doing, it exposed them to vulnerabilities which were influenced by factors that were beyond their borders. Unfortunately, due to the fluidity of globalisation, farmers bore the brunt of international trade because as Madeley (2002, p.116) explains below:

International trade is a controversial weapon in the battle against food insecurity; it has both raised living standards and caused people to go hungry and even starve. During Ireland's famine of 1846-47, which killed almost a million people, large landowners routinely exported food to Britain as poor peasants dropped all around them. But food is still today exported from poor countries where there is chronic hunger.

While international trade deals with multinational producers of crops and other products, it directly affects the poor because they are the ones who lack the means to buy food and sustain themselves. This would be an interesting gap that agricultural extension education can work towards filling. It would be helpful to find out what the poor know about the dynamics of international trade and based on that to help them understand how they can cope with its pressures.

Secondly, the other uncertainty was as a result of natural hazards such as rain, hail stones and flooding that have tended to increase in magnitude over the years. For instance, the floods in Eastern Uganda caused food prices to rise and so was the occurrence of hailstones. In the second extract, it was the lack of water that destroyed crops, while in the first statement it was too much water, which affected agricultural production. Madeley (2002, p.131), discussing

climate change, emphasised that climate is not likely to change in a 'smooth' way. Madeley pointed out that climate change will be 'erratic and unpredictable, with severe weather devastating agriculture in some years and having little impact in others' (2002, p.131). This case study reveals the erratic nature of climate change and also shows how it affects people's capacity to produce food and produce crops to sell for income. In such a case, the nature of adult education should be exploring opportunities for extending early warning systems, devising new ones and focusing on adaptation to climate change. Such a form of adult education will require people with the expertise on climate change and related issues to engage with those affected. The only question will be how the interaction between the expert and local knowledge is negotiated.

In this section, I discussed the resources that poor people rely on to secure their livelihoods. Specifically, I examined culture, diversity, social relations, property ownership, local knowledge and uncertainty. What emerged was that poor people plan for their resources based on the magnitude of their risk profile. To understand this further, I will examine how the resources farmers possessed had an impact on their risk profile in the next section.

5.4 Implications of poor people's resources to their risk profile and their limitations

In the previous section, I examined and engaged with the resources that poor people had and what that meant to their lives. In this case study, for instance, all resources that farmers had were planned for in such a way that they strengthened the resilience of a household, hence security. I will specifically examine resources and risk in relation to food security, negotiation, sustainability, the holistic principle of the livelihoods approach and the contextual bias.

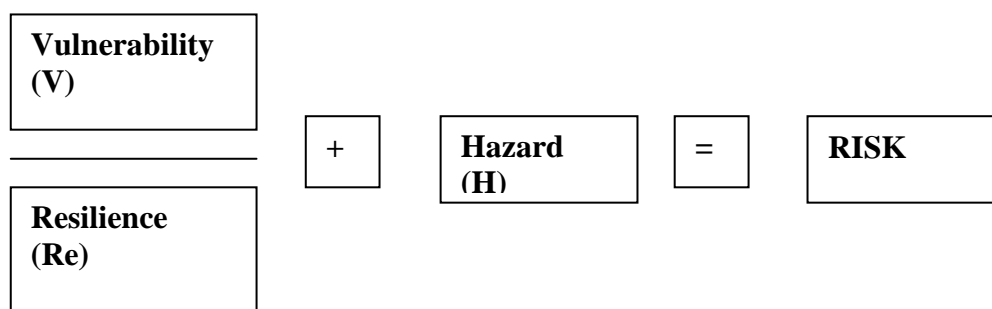
5.4.1 Food first: the food security question

The resources that poor people, as examined in the previous section, were limited in nature. To remind ourselves of what risk means, I shall use the risk formula from chapter two; presented below and adopted from von Kotze and Holloway (1999). Common perceptions of risk equate hazards with disasters. However, there is school of thought that contends that people utilise their resources to avert or lessen a risk. The resources could be physical, epistemological, environmental, social, or cultural. In other words, confronted with a hazard, the vulnerabilities of people's conditions are off-set by factors of resilience which then determine how much a livelihood system is put at risk. When a household is at risk, the vulnerabilities increase and it succumbs to insecurity. In fact, according to Chambers (1983:142), for the poor,

... Survival is a constant preoccupation, and at its most basic survival means food and not being sick or injured. Food is a continuous priority, with the well-known consequence that subsistence farmers and other poor people are averse to risks and cautious about new practices which might jeopardise their familiar sources of food or make them poorer.

Therefore, based on Chambers' argument, the first priority of poor people, which also translates into survival at its most basic level, is food. That means that for the poor, before we even talk of livelihoods' security as a livelihood outcome, we must first address food security. That is the reason why the first issue that I will engage with, will be food security and demonstrate how its availability or lack of it took vulnerability to a completely new level.

Below I will describe the risk formula that I will use which shows how the interaction between vulnerability, hazard and resilience results in risk.



The first example is a case of Judith's household and the hazards the household faced and what they did to cope with the hazard. The hazard that tended to destabilise Judith's household was food shortage as evidenced below:

... The children have come for lunch but I have nothing to give them. They have been to the plantation but there is nothing there that they can eat ... (Extract from Informal interview, Judith, February 28, 2008).

What was happening to Judith was not unique as other farmers, like Namu were also going through the same as evidenced below:

... Namu (the female farmer) looked down and shouted at the boy to stop spoiling banana leaves that they were going to use again. As she had been unsuccessful

looking for food for her children, she sent them back to school (extract from Observation, field notes, July 1, 2008).

What the example given above demonstrates is that with limited resources, poor people focus their energies on production of food first, because for them hunger is a reality. Their major preoccupation is for them to live/survive. Chambers shows the importance of food in life, compared to other life necessities. Bush (2007, p.145) has asserted that 'the biggest outrage of the twenty-first century' is that people should die because of lack of food. Therefore as Shiva (2001) argued, when poor people are preoccupied with securing food, what they are actually pursuing is their right to life, because the right to food translated into the right to be free of hunger (Shiva, 2001: 89). Such a right is not just about securing food, but extends to include the 'right to exercise a livelihood so that one's entitlement to food is ensured' (Shiva, 2001: 89). The 'right to exercise a livelihood' that Shiva (2001) refers to in this context would include the right to own and control resources that enable the poor plant and eat or sell their food. As this study has shown, such rights could include the right to own or have access to land, especially for poor people who depend on subsistence agriculture for survival.

What is described above would mean stretching the meaning of food security to look at the whole food production system in its totality. According to Roberts (2008), food production is not a mechanical process where people enter, produce, pack and send to buyers or consumers. Rather, food production is part of the life system of people and fits into whatever lifestyle, resources and constraints they face. Secondly, Roberts argues that food is produced by people with a passion about why and what they are producing. Thirdly, food is produced by and for people. The arguments delivered by Roberts show that food security is rooted in encompassing the purpose of production, who produces and the process of production.

The arguments I make above are not to state that poor people's need is only food. Rather it demonstrates that food and production for self-provisioning are first priority to the poor. This is because in self-provisioning and food production, farmers reduce the risk of hunger, hence death. Even though they also need income, the basic factor is how they can avoid the risk of hunger. Agricultural extension education therefore, in meeting the needs of the poor, should be working towards prioritising food production for, by and of the poor.

When faced with lack of food, the following extracts expose us to some of the strategies that the farmers engaged to secure food:

Otherwise am going out to look for cassava which my friend promised me (extracted from Informal interview, Judith, February 28, 2008).

Amidst this food scarcity, findings demonstrate how the farmers' situations were rendered more vulnerable because of tenure insecurity:

... Many people you see here do not own the land they are cultivating on. All this land belongs to the grandchildren of Kisingiri⁶ (Farmers' discussion; Muzaale, January 28, 2008).

... We just own plots on which we have homes, and that is where we plant our crops. Sometimes we rent land and plant crops but it is hard to find land here that no one is using (Group discussion, Kasala, February 22, 2008).

What has been presented above can be summarised using the risk formula as follows:

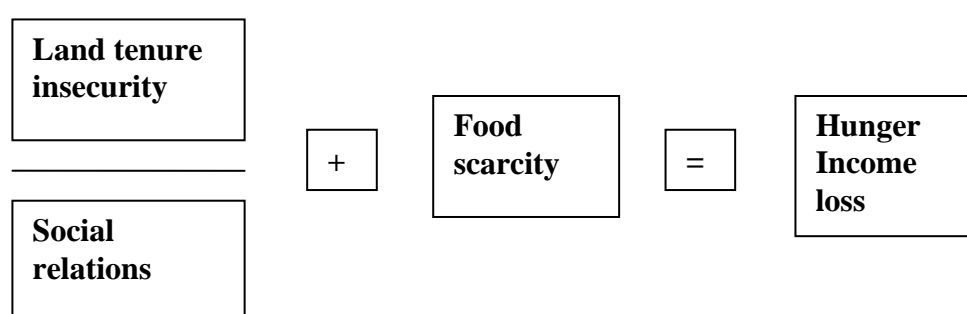


Figure 2: Judith's household risk profile

In the above illustration, land tenure insecurity is the vulnerability because even when planting, farmers can not be sure that they will be around to harvest. Their ability to plan for the future is also severely curtailed so that their lack of land tenure is both an immediate and a longer-term

⁶KisingiriZacharial was one of the regents of a Buganda king (DaudiChwa) who was enthroned when he was still a child and needed mature people to guide him. Kisingiri was one of these men chosen for that task. The three men who were chosen became famous and were rewarded with a lot of land by the Kabaka who was the owner of all the land in Buganda and could do as he pleased with it.

condition of vulnerability. The land insecurity that causes potential food shortages is exacerbated by the lack of income and hence purchasing power to buy food. In the short-term, this vulnerability is off-set by the social relations they have built and that allows them to draw on others' resources in times of shortage. Hence, the risk of hunger is decreased, marginally. Important to consider therefore, is the role of social relations in mitigating risk and any intervention that threatens rather than strengthens social relations would also increase risk.

What this means is that it is important to focus on vulnerabilities and factors of resilience. Focusing on resilience factors would determine what kind of interventions would strengthen one or the other or all the resilience factors, hence reduced vulnerability. Sometimes, you may change the law, for instance land tenure; at other times you may change gender relations so that the woman who grows food for the pot gets more / better land; at other times you may organise farmers so they share labour or produce. This demonstrates that there are various mitigation strategies that NGOs and government can work with. What is of utmost importance is for government and NGO to pick the mitigation measures that local people feel so strongly about and help to strengthen those. By so doing, the perspective of such development work will have changed focus to risk reduction hence livelihoods' security.

5.4.2 Negotiation for livelihoods' security

An examination of the strategies adopted by respondents in this study shows a pattern of negotiation of different activities, resources, contexts and others. The most outstanding were negotiating food and income, negotiating different forms of knowledge and negotiating distribution of resources. The following extracts from the findings evidence negotiation:

... Musomesa, we also do not want our crops to dry up, but we have nothing to do. We have nowhere to get mulch. And when we get it termites eat it. Because of the amount of work that we are supposed to do, we let the bananas survive and when it rains, they grow again (extract from Informal conversation, Sarah, January 17, 2008).

... My beans are rotting in the field, I have failed to get someone to help me harvest them because am busy planting other crops. At least with beans I can save something, but if rain stops, I will not be able to plant, so I have to plant first (Extract from Informal conversation, Namaganda, March 7, 2008).

... When you plant a small field, there is not enough food to sell. When you plant many fields so that you can at least make some profit, you fail to look after them and it also dies. So you wonder which one is worse than the other (Extract from Informal conversation, Semu, May 7, 2008).

The above narrative demonstrates how negotiation was part and parcel of the process of securing livelihoods. Findings reveal that farmers' food production, in a context of unpredictable weather changes, led to a higher risk of crop failure. When there was increased sunshine, crops were left to survive on their own. In this case, planting early was the resilience factor. It must be noted that planting early derived from farmers' knowledge and availability of labour power. All things that made early planting possible were given their due consideration. Sometimes there was tension between different strategies, for instance children providing labour and negotiating that with their schooling interests. Such scenarios were in most cases resolved by farmers own negotiation skills, sometimes reducing risk on both ends or postponing risk. In cases such as the one presented above, the negotiation was not with the weather, but between the strategies that one could adopt to cope with weather changes.

Furthermore, the findings reveal that each activity is decided upon after a process of negotiation. For instance, in the second narrative by Namaganda, negotiation was between which activity takes precedence over the other. In her case it was between saving the crops that are ready for harvesting or planting new crops for the new season before the rains stopped. Such actions expose the strategies of the poor and how they sometimes have to lose in order to gain.

What is important for me though is to understand the purpose of negotiating as they did. What we see here means that in the lives of the poor, negotiating could be for the future or for the current circumstances depending on the hazard. In other words: people negotiate immediate, medium-term or long-term benefits or needs. Negotiating in favour of the future would mean that vulnerability in the future will be reduced. For instance in the case of Namaganda: while to an outsider, planting before harvesting the ready crops would appear as a bad plan; to a poor person, who understands the weather changes and the risk of hunger for a whole season, such would be called planning ahead - hence livelihood security. This negotiated nature of poor people's livelihoods is what agricultural extension needs to focus on and incorporate such negotiations into agricultural extension work.

However, findings have also shown that long-term planning is sometimes negated by unforeseen situations. For instance in this case, farmers could not plan for the long-term as this was negated by lack of tenure security. In this case a farmer could plan for the future, but lose access to land and everything on it. It is such insecurities that cause the worst form of vulnerability in such a way that one loses a home, relations, food and other important things that make her/him human. Such are the complex relations of people's livelihoods that must be engaged with as and when they arise. Such dynamic and complex relations call for a continuous process of engagement that appreciates the dynamism of people's circumstances. Such circumstances call for a continuous process of negotiation. Agricultural extension education can be tilted to play such a role and engage in what I will call a negotiated pedagogy - a term I have drawn from the negotiations that people engage in to secure their livelihoods.

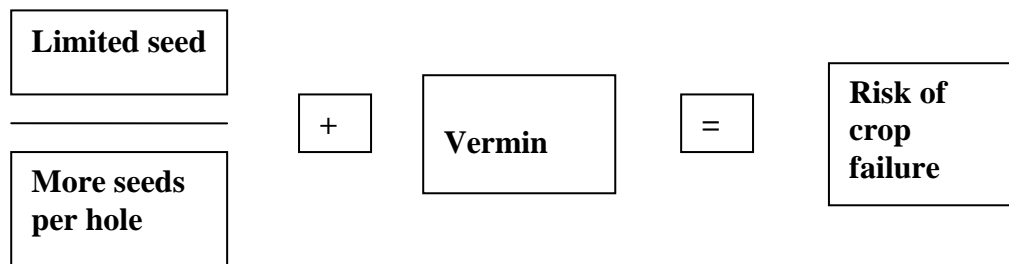
5.4.3 Sustainability

Furthermore, the farmers' actions revealed a pattern of behaviour that can be characterised as sustainable in terms of sustainability. The sustainability referred to here is that which emphasises sustenance of all life forms. This can best be demonstrated by the extracts from responses below:

... So when we plant, instead of planting as we were taught (two per hole) we put at least four seeds per hole so that when vermin eat some planted seeds, at least they leave some to grow. They never eat and finish all of them (Extracts from a group discussion, April 20, 2008).

... If we fence off our fields, the same animals will follow us into our homes and start eating the food we have in our houses. We are the ones who have invaded their habitat so we have to feed them (Field notes; group discussion, June 1, 2008).

When we apply the risk formula to the above statement thus:



The illustration reveals that farmers were operating within an environment of limited seed inputs and they had to get help from VEDCO. However, they were faced with the hazard of different types of vermin eating their seeds and they devised a coping mechanism. They would plant more seeds than they had been taught in the trainings by VEDCO. This would keep them from the risk of crop failure. From the risk perspective, this shows how in the context of poverty, hazard and vulnerability are mutually reinforcing to lead to risk (Cardona, 2004). This is an example of how poor people devise their own means of survival, and think in sustainable terms towards the environment.

The co-existence that poor people assume with nature can be traced to their view of their position in the world. The local system of knowledge tends to assume a mutual relationship with nature and other people in the environment. Hence, vermin are fed instead of being killed. The thinking exhibited by farmers, Shiva has argued is characteristic of poor people, because the poor tend to operate on the sustainability principle in its original form. She explains thus:

... The original concept [of sustainability] refers to nature's capacity to support life. Sustainability in nature implies maintaining the integrity of nature's processes, cycles and rhythms. It involves the recognition that the crisis of sustainability is a crisis rooted in neglecting nature's needs and processes and impairing nature's capacity 'to rise again' (Shiva, 1992, p.217).

The relationship that the people assumed was a relationship of mutuality with nature, which would in turn inevitably lead to a balance in the ecosystem, hence sustenance of all organisms

in that environment (Shiva, 1992). By doing so, people such as the farmers in this study, use the sustainability principle as a risk reduction strategy.

However, in a context of economic development and modernisation, the sustainability principle has been critiqued as not being development-friendly. For instance, Shiva (1992) pointed out that when operating within a context of economic development, where any process or property of nature with no market value is considered useless, sustainability becomes irrelevant. Unfortunately, as we shall see later, the view that values the market is the most popular. The result has been to try to exploit nature as much as possible in order to meet economic development needs. However, as this study has shown, poor people interact with nature guided by the sustainability principle to reduce their risk profile. How does the market help them when the basis of that principle, which is nature, is exploited beyond its limit?

5.4.4 Contextual bias

In the previous section, I engaged with the contextual embeddedness of the local knowledge that farmers had. In this section, I engage with the contextual bias of all systems and processes of poor people and find out how it contributed to resilience. To illustrate the argument, I take the example of soil infertility, and illustrate how the contextual bias enabled it to strengthen resilience in that particular village. For example, when Namu complains about red soil to Kirya, that:

... This soil is red and it will not support my groundnuts well. You see I have planted groundnuts in this place and I have given up because whatever I do, as long as it is on this red soil, they do not grow well to produce good seeds. . (Namu, March 14, 2008)

And Kirya answered that:

... This soil does not have all the nutrients the plants need to grow because a lot of soil that is black/grey and has all the nutrients has been washed away. Our village is on a hill so most good soil goes downhill. (Informal Interview, Kirya, March 14, 2008)

The answer that Kirya gave Namu was only relevant to their village because its landscape is different from other places. That answer could only make sense in the context of their village.

The farmers' actions serve to demonstrate an important aspect about our practices. In this case farmers' knowledge of the local soil conditions was a huge asset and therefore should not be ignored. In fact, Harding (1986, p.28), while writing about feminism and science, argued that "we cannot discern the effects of these cultural markings in the discrepancies between the methods of knowing and the interpretations of the world provided by the creators of modern western culture and those characteristics of the rest of us". The argument by Harding, viewed in the context of this study, shows the value and contribution of context to any system. In this case study, the way farmers understood the conditions around them and devised strategies to take care of their challenges was strengthened by their cultural and physical context. For resource poor farmers, this is crucial because survival of their crops depends on it.

In this section I have discussed the implication of poor people's resources to their risk profile and coping mechanisms. I engaged in a discussion on how farmers' resources determine their choice for food first. I then engaged with how the resources determined the methods poor people chose to take to secure their livelihoods. And lastly, I evidenced how sustainability and contextual bias were determined by the resource base. What stood out from the discussion was the view that poor people make choices on how they secure their livelihoods, and how most of these choices are pre-determined by what resources they have at their disposal. In the next section I will explore the contribution of agricultural extension education to poor people's livelihoods; given the constraints and the resources.

5.5 The contribution of agricultural extension education to poor people's livelihoods.

VEDCO, as an organisation, contributed a lot to poor people's livelihoods, enabling them to access services to enable them increase their incomes. I will categorise VEDCO's contribution into four categories, which bring together all the work they did. The four categories of contributions include training of farmers, helping farmers to access markets, new technologies, and enabling access to credit.

5.5.1 Training of farmers

All the training which farmers got from VEDCO was meant to contribute to livelihoods' security, whether it was for food production or for commercial production. The major goal of training was so that farmers would acquire skills that would enable them to increase their incomes. VEDCO decided to first concentrate on training for food security and then proceed to commercial production as one extension worker confirmed below:

...Yet we have a project that is supposed to move in phases. The farmers who are supposed to have attained food security have not attained it. Yet we are supposed to be training them in farm business education (Extract from EW, quarterly review workshop, October 16, 2007).

What the findings above reveal is the thinking behind VEDCO's actions, that both food and income are important to farmers. According to the livelihoods framework, income and food security are the two basic livelihood outcomes of poor people's strategies (Jasper, 2006). What the findings mean is that efforts to help the poor should first acknowledge the importance of both food and income. What needs careful consideration is what the priority should be. Should food be prioritised over income or vice versa and why?

In the findings, it was revealed that most farmers had not attained food security. Nevertheless, VEDCO was carrying on with the schedule of its programme and training farmers in business skills as if they had already attained food security. From the findings, we can deduce that VEDCO assumed that livelihoods' security was supposed to proceed in phases and that is how the project had been planned. VEDCO's thinking bears close resemblance to the modernist

thinking on development which assumes that development is supposed to proceed from one level to another (Youngman, 2000).

According to Roberts & Hite (2000), under modernisation there is an assumption that for a community to proceed to the next development level there is a single route that such a community must take. In fact, Youngman asserts that 'the fundamental premise of modernisation theory was that there is a single process of social evolution ...' (Youngman, 2000, p.53). While there would not be any problem with people/communities progressing in a linear fashion, in principle such thinking would depart from the view that embraces progress as encompassing all aspects of a person/community's livelihoods. Having been exposed to the livelihoods approach, I find that it enables one to realise the importance of both food and income within the same livelihood system. When I apply the same framework to the findings in this study, I also realise that farmers' lives were not just about incomes or food; there was more to their lives. They wanted incomes, but they also wanted to maintain their relations with their neighbours and those around them. They wanted food, but they also needed money to pay school fees for their children. Therefore, it would be misleading to concentrate on only one aspect of their livelihoods without considering all the other sub-systems within the livelihood. The major question would be to explore what the nature of agricultural extension would be when a whole livelihood system is the focus. I cannot get to that conclusion without examining VEDCO's agricultural extension training process in the context of the livelihoods of farmers. Therefore, I will examine the training process to determine how it was attuned to poor people's livelihoods. Particularly, I will examine the purpose of training farmers, the content/curriculum of training and the methodology used in training. Examining the training process will enable me to understand the place assumed by agricultural extension education in a development process.

5.5.1.1 Purpose of training farmers

VEDCO trained farmers for a specific purpose - to engage in production for the market. Training in food production was supposed to enable farmers to produce food so that they could engage in production for sale. Therefore, food security was not looked at as a livelihood outcome on its own. In principle, for VEDCO, food production was important, but increasing incomes was more important as the ultimate goal of production. This was besides the view that for poor people, food production or production for self-provisioning is so important because it directly affects life and its support systems (Bush, 2007).

The purpose of training promoted in VEDCO, causes us to question what the purpose of agricultural extension education is. Fundamentally, agricultural extension education is a pedagogical process and like any other process, it has a purpose. What needs to be engaged with is: do we look at 'extension' as the thrust of the education or education as the thrust of 'extension'? Why do I suggest this kind of thinking? According to Feder et al (1987), agricultural extension education should be aimed at increasing knowledge of farmers about crops and cropping practices. This is what I would refer to as the mechanistic view of agricultural extension education. The concentration of the education is on crops and cropping systems but Freire (1973) has urged educators to widen the view of agricultural extension education; to move it from the mechanistic view to a more encompassing pedagogy. Freire acknowledges that within 'the question of extension', there is "an unquestionably mechanistic connotation in as much as the term implies an action of taking, of transferring, of handing-over and of depositing something in someone" (Freire, 1973, p.99). Moreover, the danger of approaching extension as a mechanical process is that,

... If they do practice extension, they do not really share with others the conditions for knowing. If their action is merely that of extending elaborated 'knowledge' to those who do not possess it they kill in them the critical capacity for possessing it (Freire, 1973, p. 101).

For Freire, therefore, the purpose of training in agricultural extension education should not be about passing on or transmitting information from one person to another, hence extension. Rather, the purpose should be to enable human beings understand their world through a process of "problematizing" (1973, p.107). Problematizing would mean that the challenges that farmers face in their daily activities would become the problematic that forms the basis for extension education. For extension agents to engage in such a process, they would need to redefine their role. Extension agents would need to understand that problematic and relearn the methodology that would make that problematic useful to the training process. It would require a lot of negotiation, internally, within the individual - a kind of dialogue with self - and negotiation with the external, the milieu within which extension workers operate.

5.5.1.2 The process of training

Findings revealed that the training process was systematic and pre-planned by extension workers as the following extract reveals:

I asked him what methods he was going to use and he said that he would use 'the participatory methods' that we always use in the other trainings. 'Do not ask as if you have never seen these trainings. It will be like any other workshop where farmers will come and learn' (informal conversation, 15 June, 2008)(extract from section 4.2.5.2).

The use of participatory methodology was a practice that VEDCO emphasised a lot in its trainings. However, elsewhere (see Babikwa, 2002), it was observed that participation that is referred to in VEDCO's training programmes was mechanistic. It followed the same routine all the time and the methods used were always similar because they were drawn from a training manual. Farmers were simply required to follow what had been taught and demonstrated, as the following extracts reveal:

...You have to come and see the cassava field today, it is doing very well. You see your cassava is doing well. I have planted the dimensions you taught us (4 x 3), like you taught us and you remember that I was given these two types (Informal conversation, Kirya, October 18, 2007).

From the above evidence, findings suggest that the training and what was supposed to be done was about the extension workers and what they taught. The role of the farmer was to learn what was taught and follow it well. There was a basic assumption on VEDCO's part that all farmers as learners knew little or nothing about what the extension workers were going to teach them.

The descriptions of the training process and the experiences described above tend to suggest that VEDCO's practices mirrored what Paulo Freire called 'banking' education'. The actions of the extension workers mirrored the 'act of depositing, in which students (read farmers) are the depositories and the teacher is the depositor ... the scope of action allowed to the students extends only as far as receiving, filling and storing deposits' (Freire, 1972, p.45). "Knowledge is a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing" (1972, p. 46). From the description of the activities in the class, one

can deduce that farmers were there to listen and apply what they had been taught and if they did not apply it, there would be consequences as the following extract reveals:

Farmer: I cannot call this my garden, because if the extension workers find that I have planted their crops like I plant mine, they will complain. If anything happens to the plants they will say that it is because I did not do things right, so I should not blame them. This is VEDCO's field and they decide what to do on it. For me I just provided land (Extracted from the informal conversation, Namu, June 20, 2008).

According to Elias & Meriam, Freire points out the consequences of such a teaching process that in the process of:

Imposing curricula, ideas, and values, it submerges the consciousness of the students and produces an alienated consciousness since students are not actually involved in a real act of knowing, but are rather given a ready-made view of social reality (Elias & Meriam, 2005, p. 159).

The goals of learning therefore were not the goals of learners, but those of the organisation, making learners 'objects' in the process. It was no wonder that at the end of the training, when the trainer asked the farmers to evaluate the training, farmers revealed that they would have wished to learn how to fertilise their soils and control vermin and insects that ate their crops (see section 4.2.5.2).

According the following quote, the extension workers sometimes felt frustrated by the farmers seemingly lack of knowledge about what they wanted:

Farmers do not know what they want. I think they are using us to try out their own things. Today, they will tell us to give them cassava, when you bring it they complain that it is not what they wanted, so they refuse to plant it (Quarterly review workshop, October 16, 2008).

The above narrative shows what is typical of banking education and how the process teaches learners over time that they do not know anything as expressed by Freire:

... so often so they hear that they are good for nothing, know nothing and are incapable of learning anything – that they are sick, lazy and unproductive – that in the

end they become convinced of their own unfitness They call themselves ignorant and say the 'professor is the one who has knowledge and to whom they should listen (1972, pp. 38-39).

However in this case, findings show that sometimes farmers expressed what they wanted, but the extension agents did not necessarily listen to them and dialogue with them. For instance, after one of the trainings in farm business education, during the evaluation farmers expressed what they wanted.

... There is no one here who does not do small trading in farming. For us our fields are our shops, we budget, we buy, we sell and we learn many things as we go along. Now we want to learn something new about business, something challenging. We come for training because we do not want our extension workers to think that we do not respect them (Informal discussion, June 17, 2008).

What is revealed here is that when farmers get an avenue to express themselves, they make use of it. Maybe agricultural extension education as pedagogy needs to think about having more dialogical spaces where farmers can engage with the extension workers, preferably before the training so that such ideas are incorporated into the training. That will call for some flexibility on the side of the agricultural extension workers. However, extension workers will have to first deal with the one fundamental question. Will agricultural extension education be handled as a pedagogical process or as a mechanistic process that is required to provide a process through which mechanical skills can be transmitted? This is because, when viewed as a pedagogical process, the basics of dialogue, participation, and mutual respect will be expected. However, when viewed as a mechanical process with the purpose of passing on expert agricultural knowledge for instance, the main concern would be to transmit knowledge successfully.

The questions that we need to engage with as educators would be for instance, what would determine the character that agricultural extension education assumes? Is it the learners, the extension workers, organisations that provide such services or it is the activities and livelihoods of farmers? What do we want the overall purpose of agricultural extension education to be? By attempting to find answers to these soul-searching questions, we shall be shaping the character of agricultural extension education.

5.5.1.3 Content of training

The content of the training is an important aspect of extension education because it is what directly links to the purpose of the training and livelihoods. Content was developed into manuals and delivered by qualified people mainly to maintain uniformity as evidenced below:

... We have manuals for training in all crops we promote. We have a manual for bananas, cassava, potatoes, upland rice and other crops. We developed the manuals as extension workers and different trainers so that the training we gave farmers would be uniform (extracted from EW, informal conversation, 4 April 2008).

The training manuals served as a guide to any extension worker who wanted to carry out training. The following extract evidences how the manual was used by the extension workers:

... I have done this for a long time and even if I close my eyes, I can memorise it and teach it (Field notes, June 17, 2008).

And during the teaching process:

After the discussions, farmers were invited to present what their groups had discussed. After all farmers had presented, the extension worker got the manual and got an example of a poultry farm and used it to calculate the income and expenditure pattern (extracted from notes on FBE training, 17 June 2008)

The evidence above tends to suggest that all content was drawn and executed by the extension workers. They planned all the curricula and passed it on to farmers with minimal change in the content that was pre-planned. According to Freire (1972), when the teacher (extension worker) chooses the content, the pedagogical process subscribes to 'banking education'. Freire explains that in banking education for instance, "knowledge is a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing" (1972, p. 46). Freire further explains the assumptions of the banking education:

... implicit in the banking concept is the assumption of a dichotomy between man and the world: man is merely in the world, not with the world or with others; man is spectator, not re-creator. In his view, man is not a conscious being ... he is rather a

possessor of a consciousness, an empty 'mind' passively open to the reception of deposits from the world outside (1972, p. 49).

The content, viewed in Freirean terms, was drawn from knowledgeable sources to be transmitted to farmers who were assumed to know nothing as one extension worker had explained in the following extract:

... Farmers do not know what they want. I think they are using us to try out their own things. Today, they will tell us to give them cassava, when you bring it they complain that it is not what they wanted, so they refuse to plant it (Extract from Quarterly review workshop, October 16, 2008).

However, farmers differed in thinking regarding their own assumed ignorance as evidenced below:

... We have our way of doing things, but when you [educated] people come, we put it aside and do what you want us to do and when you go, we go back to our own ways, because sometimes your things do not work out (Group discussion, February 15, 2008).

The above quotes show the assumptions of development workers and the consciousness of poor people. The farmers let the extension workers assume the superior status because they were simply 'educated people'. However, the same farmers were aware that sometimes knowledge of educated people backfires, so they did not apply it. What the farmers and extension workers actions demonstrate, answers one of the questions of this study; that is, what happens to modern knowledge and local knowledge when they confront each other in the same field?

The findings presented above suggest that when the two forms of knowledge meet, it is the holders and receivers of the knowledge who determine what happens. At the heart of the actions is the knowledge that farmers had of the superior position that modern knowledge tends to always assume. Such a view of knowledge shows that the process was aimed at showing knowledge as a field of power (Rouse, 1987). Extension workers engaged with learners as objects because they had been taught and their knowledge had been constructed

in a system, which valued scientific knowledge as the universal truth. In the training process of VEDCO, farmers were merely receivers of expert knowledge, while the extension workers were givers of expert knowledge. The only one who was supposed to introduce any knowledge to farmers was the extension worker. For instance, the extension worker who took the class for the training in Farm Business Education had mastered the content in training materials, after teaching it to many other classes.

5.5.2 Access to Markets

The primary purpose of providing agricultural extension education to farmers in the VEDCO programme was so that they would manage to sell and improve their incomes. This was evident in the statement of the programme goal of VEDCO that they aimed at 'improving livelihoods of small and medium farmers and micro-entrepreneurs through sustainable food security and household income generation' (VEDCO, 2007). This was ensured through one of the programmes that were mainly focusing on availing farmers with market information. Some farmers reported to be involved in some form of trade as evidenced below:

Let me sell this cassava and get rid of these problems coming now, so that I know that that chapter is closed and I focus on other crops (Informal interview, Soki, March 7, 2008).

For a farmer like Soki, referred to in the extract above, whose field had just been destroyed by hailstones, the market enabled him to redeem at least some of the capital he had invested in planting the cassava. According to the farmers in the following extract, there was always a ready market that can be attributed to the VEDCO programme:

Whichever crops we plant these days, there is always someone willing to buy and that prevents us from keeping food. I have for example already sold my whole maize field because someone came and gave me money that I needed at that time (Informal discussion, Soki, Semu, Namu, May 10, 2008).

When I have some extra food from the harvest, I sell it to get some income for salt, but if they do not do well, I sell chickens and get some money (Informal interview, Keziah, April 9, 2008).

In the narratives given, findings reveal that VEDCO enabled farmers diversify their livelihood activities, hence spreading the risk profile. For instance, when the hailstones hit crops, the market was the quickest alternative for Soki. In the above extract, Keziah demonstrated how diverse her livelihood activities were and how that diversity enabled her to raise her income. Furthermore, farmers were able to think of the market and sell their produce because that was the purpose for which VEDCO had distributed the crops and chickens. By stretching the farmers' livelihood activities, VEDCO spread the risks in farmers' livelihoods. It provided alternatives for those times when there was crop failure. By providing such alternatives, VEDCO increased farmers' resilience, hence livelihood security.

However, in this case study findings also reveal another pattern of events related to the market that did not necessarily promote resilience but on the contrary, reduced the same resilience farmers were trying to build. For instance, in a bid to meet the demands of the market, the only viable agriculture that VEDCO wanted to promote was large scale commercial agriculture. This is evidenced by the requirements that were supposed to be met by farmers before they could engage in farming as a business.

... a) The farmer who is chosen as RDE must be chosen by consensus by his or her group, b) they have to be committed enough to attend all the trainings, c) they have to have some piece of land for establishing demonstration fields when required (Group discussions, October 1, 2007; October 4, 2007).

... Most of us here in this village are not bibanja (free hold titled land owners). We are therefore left out when they say that we should use five acres or more if we are to get any money out of our fields (Group discussion, Kasala, February 22, 2008).

The need to enable farmers to produce for the market overshadowed the real livelihood challenges of farmers, like land tenure. Farmers who did not have five acres of land or more were left out of the second phase of the programme. This effectively meant that 78% of the sample of this study would not be supported to move onto the next phase. What the findings suggest here is that it is not the market that is problematic; it is the priority which the market is given that presents challenges to poor people. For instance if the market is positioned as the answer to all poor people's problems, such a view is open to be challenged. In my analysis the priority that 'market' as a concept is given depends on one's understanding of the 'market'. For

instance, do we envisage the market as a place where people engage in relations of exchange or as a place where strangers sell goods and buy things from each other? Each of these perspectives of the market leads to different consequences for people. The first view puts people and the relationships they engage in first, while the second puts the market first. Unfortunately it is the second view, which puts the market first that has dominated recent development debates and the work of organisations like VEDCO.

In the dominant view, the market is understood to be the place where strangers are engaged in selling and buying of things. In the light of my findings this is the view which partly influenced what VEDCO was promoting. This is the view in which:

... Constant technical innovation and commodity exchange are basic pre-conditions for our modern ideal of manipulation and mastery of the human, social and natural domains... Efficiency and wealth are thus sought as ends in themselves. The subversive process, which is the potential transformation of everything into products, and then into commodities, is generally viewed as a necessary requirement for the 'good life' (Berthoud, 1992, pp. 79-80).

In order to arrive at the 'good life', people must accumulate more, they must produce much and if they have no means of producing and accumulating, systems are put in place to ensure that they borrow to arrive at wealth accumulation. The same view is what guides the neo-liberal economics, in that the market is pushed as the only pathway to achieving development (Godrej, 1995). For developing countries like Uganda, this translates into being forced to increase 'integration within and dependence on the international market economy in one way or another' (Berthoud, 1992, p.70). Moving deeper into the international market economy puts different systems at risk. For instance, Bush (2007) has argued that the reason why people are going hungry in different places is not because there is no food to feed them but it is because of the need to have more promoted by commoditisation of life and other forms. According to Bush, it is because the market has been presented as the only pathway to development, which is not the case. Shiva (2001) asserts that when poor people's resources and knowledge are brought into the market place, a process of exclusion is initiated as poor people's social support systems are destroyed. What this means is that what is marketable is what determines who will be excluded or included. In the case of poor people's livelihoods for example, the market is supposed to be useful only in as far as it enables such poor people to cope and survive with the resources they have.

The major question that emerges here is what adult education should be in these circumstances? Should it also participate in developing systems and resources for the market? Should adult education focus on producing people who fit into the demands of the market? My argument is that agricultural extension education could focus on helping poor farmers understand the systems within which they have been forced to operate. This will be equipping them with skills to analyse and cope with the challenges of the market. This will help them to anticipate and plan accordingly, depending on the activities they will be carrying out. This is critical adult education as advocated by Freire.

5.5.3 Technology

VEDCO exposed its farmers' groups to new technologies and ways of farming as the evidence below shows:

...The cassava varieties that VEDCO gave us yielded very well and we got excited the first time (Extracted from Informal conversation, Namu, April 15, 2008).

...The new varieties of crops [hybrids] need a lot of labour and yet they do not stay for long in the field, but we plant them because it is what the buyers want to take to the city (Extracted from Informal conversation, Keziah, May 1, 2008).

...You see your cassava is doing well. I have planted the dimensions you taught us (4 x 3), like you taught us and you remember that I was given these two types (Extracted from Informal conversation, Kirya, October 18, 2007).

Farmers received new seeds which were improved to withstand the changing weather because they are drought-resistant. These technologies were delivered by extension workers and farmers were trained on how to plant them (see Kirya above). Some of the technologies promoted by VEDCO were very helpful to the farmers because they could withstand drought, a major concern of farmers. Furthermore, VEDCO provided inputs, in the form of seeds, to farmers, which enabled them get food, eat and sell. As already expressed by farmers, one of their major stresses was lack of seeds at the time of planting. By providing seeds, VEDCO increased the resources/assets that the farmers had, hence an improvement in their resilience.

However, the new technology that farmers were exposed to had its own shortcomings that unfortunately both farmers and extension workers did not manage to handle as evidenced below:

The cassava varieties that VEDCO gave us yielded very well and we got excited the first time. However, when we uprooted the food, it was sour that even buyers could not take it. It turned sour as soon as it matured so we found that we had no food to shield us from food scarcity (Informal conversation, Namu, April 15, 2008).

Cassava buyers came from town and they only took a little of the cassava that was left when hailstones struck last time. When we tested cassava from the other field, we found that all its cassava was sour (Informal interview, Kirya, April 8, 2008).

Musomesa, please do not give me nakamali this time. The last lot of suckers you brought me had a lot of nakamali. Please do not bring me more...I cannot know which sucker is going to turn out as nakamali. But even then, as long as a sucker has got all the manure and all the attention it needs, it cannot turn out as nakamali (Participant observation; informal interviews, March 2008).

Musomesa, can we tell you the truth? It is tricky to plant potatoes at the beginning of a rainy season. We would never plant when rains were at their peak, and that is why the vines VEDCO usually bring at this time end up rotting (Group discussion, April 9, 2008).

The extension worker did not know what disease it was and how it could be stopped. He promised that he would find out and decided to name it the 'leaves disease', though farmers were calling it a type of wilt (Observation, April 18, 2008).

The above narratives show a pattern of difficulties with modern technology. Crops turned sour and farmers did not want some varieties of plants and bananas got infected by 'leaves disease'. What is significant is not that farmers met challenges; it was how the diseases and the sour cassava were handled that is very significant. In all the problems that farmers met regarding new crop varieties given to them, there was no problem that extension workers could

help farmers prevent or treat. New technologies are introduced to farmers, but when they are challenged no one can add anything to the technology.

From the above discussion, findings suggest a characteristic that is closely associated with scientific knowledge. Scientific knowledge is constructed in specific places by specific people and only those have the right to alter it in any way. This is because worthwhile scientific knowledge is constructed in laboratories, not on farms. It is disseminated through a hierarchical process in which each person involved has a specific role to play. According to Rouse (1987), science tests and tries everything until it is seen to work making science the most successful means of constructing representations of the world. The new technologies that were being promoted by VEDCO were part of the process that has been tried and tested and seen to work. This presents new technologies not only as part of a field of knowledge, but also as a field of power (Scandrett, 1999). The system had power that influenced those who constructed knowledge, disseminated and utilised. This power was based on formal qualifications attained at each level. The 'authority', 'hierarchy' and 'superiority' that it assumed (Chambers, 1983, p. 201), tended to give it a stand as the only knowledge worthy of being taught to people. As the only authoritative and worthy knowledge, scientific knowledge was determined without 'social mediation' (Shiva, 1993, p.11).

What these findings suggest is that even specialised scientific knowledge, like any other form of knowledge, has some limitations. The absence of an inbuilt system to handle its limitations increased the susceptibility of farmers' livelihoods to risk. Agricultural extension education therefore should ensure that for the technologies that are disseminated to farmers, there is a linkage between farmers and scientists that can allow for feedback from farmers about the technologies created. This could be made possible through a dialogical system that is not based on the power of one system, but one that recognises that even farmers are part of the system of making their livelihoods better, whether through scientific means or local means.

5.5.4 Access to credit

According to Madeley (2002, p.100), 'millions of resource-poor small-scale farmers do not have access to credit or savings facilities'. Yet the same farmers 'may have few or no liquid resources of their own to buy even a small amount of inputs such as seed' (ibid, p.100). In this regard, VEDCO provided access to credit through Rural Credit and Finance (RUCREF), a semi-autonomous village bank that grew out of VEDCO.

However, none of the farmers I worked with disclosed that they had accessed the RUCREF credit facility. The major reason for the farmers not making use of the credit facility can be evidenced in the following quote:

For one to get a loan, one must have collateral security... I cannot stake my land on which my family lives to get a loan. What if I fail to pay? (Peter, Informal conversation, April, 2008).

What Peter stated above expresses the fears of most resource-poor small-scale farmers in other places. For instance, Madeley (2002, p.111) explains that 'poor farmers may also be reluctant to take out a loan. With no reserves, even a small loan may be considered too big a risk. It is the better-off who are more likely to use microfinance and to benefit'. However in this case, even the 'better-off' considered loans too big a risk. The risk was real as the following narrative about one of the groups showed:

The first group were involved in vegetable farming. At the time of this study, members of this group had a vegetable field that they were preparing to harvest for sale. One of the group members had donated land, which they used to plant the vegetables. They all participated in the labour demands on the field every Wednesday when they met. During the dry season, their vegetables could not withstand the sunshine and dried up. They lost their whole harvest for that season after they had put a lot of time and money into it.

The findings above suggest the dilemma that resource-poor farmers find themselves in. There is credit available, but they are not sure about what will result from the activities they are involved in. Furthermore, it demonstrates that the problem that poor farmers have is not where to access credit. Their challenge is the conditions that are set before one can get credit. They have to weigh between losing the basis of their livelihood (land) and getting an extra source of income. As we have seen, one will choose to lose out on getting a loan and maintaining a piece of land that holds the present and future security of one's household. By doing so, they are reducing the risk to their livelihood.

The findings further reveal the interrelated and complex nature of poor people's livelihoods (Neefjes, 2000). Making a decision about one aspect of gaining finance has to be contextualised within the whole livelihood system. All aspects of the system, however minute they might seem to the outsider, tend to matter when a decision is to be made. Agricultural extension service provision therefore needs to learn from the farmers' thinking about their livelihoods. Such thinking would be focused on the whole livelihood system instead of fragmenting the components of the livelihood system. This would practically translate into a situation where all aspects and their inter-linkages are examined with poor farmers before programmes are planned for them. By such thinking we shall be looking at improving livelihoods' security and not just income or food.

5.6 Systems, structures and risk in agricultural extension education

Based on the findings discussed, I have argued that livelihoods of farmers should be approached as a whole, not as fragmented sub-systems. The reason for this is that when one component of a livelihood is put above other components, livelihoods' security is compromised. In this section I will examine how risk resulted from a lack of engagement with gender and power issues at community and organisational levels. I will first examine gender issues related to land ownership paying close attention to their effect on the risk profile. I will then move on to examine issues around power to understand how power was manifested by farmers and extension workers. I will end with an argument about how the subsistence community of farmers become the subsistence risk society.

5.6.1 Manifestations of risk perpetuated by gender inequality

5.6.1.1 Land ownership and food security

According to VEDCO, women were in charge of food security in the areas where programmes were implemented (Kyaddondo & Kyomuhendo 2000). From the descriptions of farmers and their activities, we can conclude that all farmers practiced subsistence farming. What that meant was that food security was ensured through subsistence farming. In subsistence farming, 'all human actions require portions of the surface of the earth as their spatial base. Therefore, land is both object and instrument of labor in addition to being the place of work' (Trouillot, 1988, p.5).

Having acknowledged that land is important to subsistence farming, especially to ensuring food security and having known that women were in charge of food security, it was contradictory to find that women did not own any land. No woman in the study acknowledged ownership of any piece of land, and those who were widowed or single parents referred to the land they accessed as their children's land. Lack of access to and control of land led to food scarcity in homes, even when there was food in the village as evidenced below:

... When you come near my house, you see a lot of food around, but come back in a week's time and you will not find any of this food. My field and where I can get food, is only this one near the house. Apart from that, that cassava field is my husband's and he cannot see anyone near it (Informal interview, Kaala, January 24, 2008).

What the findings suggest is a contradiction in systems in the community. The cultural system was such that women were not supposed to be land owners, but the social system was such that women were supposed to grow food for their families as James explained in the following extract:

... It is a woman's job to make sure that she had food for her children. For me, I have to look for fees and money for other big things. I even gave my wife her own part of land and plantation so that she does not turn around and say that she had no land to grow food (Informal interview, James, March 11, 2008).

Going by Trouillot's argument (1988) that land is the place of work for subsistence farmers, we realise that women did not have any place to work. Yet according to Madely, people who have access to land are more likely to grow food to ensure food security (2002). While the discussion is around food security and resources for ensuring food security, the wider discussion is about women's work and the attention it gets from development workers.

In the current economic structure, work that is considered worthwhile is work that can generate income and promote economic growth, along with knowledge and technology. The tendency therefore is to consider work that is done by people to generate money and ignore work that is done to produce food to feed one's household. That means that even the structures that are emphasised are those which promote production for the market (income) as opposed to those which produce for self-provisioning. In this case study, for instance, work promoting production for the market was considered more useful and given more attention than work that produced for household consumption. Activities related to production for the market were therefore allocated more land and other resources. That was the context within which VEDCO was supposed to provide agricultural extension education.

In the provision of agricultural extension services, VEDCO realised that food security was still a problem so one of the basic issues to engage with was identified as food security (VEDCO, 2007). However, food security was a focus because VEDCO realised that without food security there would not be production for the market. Food security was supposed to be a stepping stone for production for the market. Materials for food security were distributed to farmers, but unfortunately the female farmers did not have land so the materials ended up being taken by men. What VEDCO did not realise was that in this cultural system, the male gender is still

associated with masculinity, leadership, decision-making, superiority and control of economic resources such as land, money and houses (production)' (Nafukho et al, 2005, p.88). Such characteristics are what ensured that food scarcity would be a 'permanent emergency' (Beck, 2000). In the end, although there was food in the community, people who had worked with VEDCO since its inception were still being affected by food insecurity.

What the above discussion demonstrates is that agricultural extension education operates in different contexts which it must first interrogate. When education programmes are implemented without a deep understanding of those contexts, the result is a reinforcement of the status quo and a worsening of the inequalities that already exist. Sen (1989, p.61,76) cautions that when examining family relations, such as those which are gender-based, we must remember that 'obvious benefits accrue to all parties as a result of family arrangement, but the nature of the division of work and goods determines specific distributions of advantages and particular patterns of inequality'. In these patterns of inequality, social processes emerge that worsen the situation by exposing more people to risk as a result of power relations in a community (Hilhorst & Bankoff, 2004). The discussion means that although agricultural extension education does not produce these social inequalities, it is implicated in the continuous existence of such inequalities. Agricultural extension education as a practice that encourages things to be done differently, should engage with the root causes of inequalities to reduce the risk profile of poor people.

5.6.1.2 Distribution of labour

VEDCO, as I have already discussed, introduced new technologies and ways of farming to farmers. The new technologies and methods increased farmers' resilience and in some cases reduced resilience. In this case, sometimes the new technologies which were introduced required a lot of labour. In most cases, the burden of meeting labour demands was passed on to women as the evidence below shows:

For instance, Keziah explained that:

The new varieties of crops [hybrids] need a lot of labour and yet they do not stay for long in the field, but we plant them because it is what the buyers want to take to the city ... (extracted from Informal conversation, Keziah, May 1, 2008).

I will never forget those bananas at the back and for me, I think I will concentrate on potatoes, cassava and beans. We had to look for water in the dry season because the sun shined for a long time and the bananas were drying ... (extracted from Informal interview, Becky, March 18, 2008).

... After watering, then weeds would all come in big numbers and we would regret why we decided to water the bananas. Then he decided to go and get grass and mulch the plantation so that he would have some rest from the weeds (extracted from Informal interview, Becky, March 18, 2008).

The pay-offs for the farmers were the returns they expected from the modern crops. Yet in the extension workers' perspective, it was the farmers' fault if their crops died as the following extract demonstrated:

You see these farmers, now look at this plantation, the suckers are all drying up because they are not getting enough water and he [the farmer] did not bother to mulch at all... These farmers ask for things, we teach them and we give them what they want. But just simply looking after them becomes a problem. Then they expect to get more (Informal conversation, extension worker, January 29, 2008).

However, the farmers' explanations showed that they took the decisions they took, because they had a lot of work on their hands in a very short time as the farmer explained below:

Musomesa (teacher), we also do not want our crops to dry up, but we have nothing to do. ... Because of the amount of work that we are supposed to do, we let the bananas survive and when it rains, they grow again (Informal conversation, Sarah, January 17, 2008).

What the narratives above demonstrate are two dimensions of approaching work and labour. Farmers' actions and thinking demonstrate a holistic approach to labour. In this case, the farmers viewed labour demands in relation to benefits from the field, in relation to food security, and in relation to benefits from other crops they had planted before. On the other hand, the VEDCO extension workers demonstrate the monoculture thinking associated with modern agriculture (Shiva, 1982). For the extension workers, more consideration was given to crops

which VEDCO distributed. Farmers were supposed to carry out activities as told, irrespective of the increased labour burden on women. According to Madely (2002), women, while producing food, work longer hours on average than men. Madeley (2002) further points out that women work 13 hours a week more than men each week in Asia and Africa. In Uganda they work more than twice as long' (ibid, p.92). If we keep in mind that working long hours on the farm does not necessarily translate into increased output for women, we begin to understand how new technologies are considered a burden to females. The benefits of their hard labour all go to the one in control of labour, who was the man (Nafukho et al, 2005).

According to Nafukho et al (2005, p.90), control of women's labour is closely associated with the material basis of patriarchy, which they argue: "lies most fundamentally on men's control over women's labour". With control over women's labour men are guaranteed to comfortably expand their material bases and edge further into modernity. Therefore, control of labour is fundamental to the modernisation project and its expansion of the material base. When all effort is focused on expansion, the likely outcome is maintaining the unequal labour relations as we have seen in this case. In such a scenario, adult educators have to make choices about the nature of extension education they will provide. Should adult education join the project which intends to expand the material base or should it work against injustice, against the unequal relations? Working against such unequal relations will require for adult educators to confront systems entrenched in patriarchy and other such unjust systems. According to Youngman (2000, p. 148), "gender inequality must be considered as part of the social context of adult education, whose policies, practices and outcomes will necessarily have a gendered character."

5.6.1.3 Recruitment of RDEs

Groups of farmers who worked with VEDCO chose RDEs on criteria provided by VEDCO (see section 4.2.4). RDEs hosted fields on behalf of their groups, received planting materials and harvested the crops that were planted and sold them as theirs. Farmers, who hosted fields of crops, received planting materials on the group's behalf and when crops were ready, the harvest was for the RDE. The RDE needed to have land, labour and time as the basic resources among others to take care of the hosted field because it was supposed to be used as a learning site for other farmers. Therefore, VEDCO was justified in setting land ownership as a prerequisite for being an RDE. However, the same criterion favoured the male gender over the female gender.

According to Walters (1996), programmes aimed at women empowerment have tended to exclude the same women whom they set out to help. Walters argues that this exclusion comes as a result of focusing on women's 'condition' as opposed to 'position' (Walters, 1996, p.295). A focus on condition, according to Walters, involves a focus on poverty, lack of education, excessive workload and others. A focus on position involves interrogating the social and economic conditions of women in relation to men (ibid, p.295). A focus on condition is centred on enabling change in the circumstances of women directly, but it does not go deeper to engage with the root causes of those conditions. For instance, findings in this case suggest that the reasons why women would not engage fully in VEDCO's programmes was because they did not have the means to do what was needed. VEDCO did not help female farmers access the means to engage in what they wanted to do.

In VEDCO's actions, there exists a tendency to view farmers as a homogeneous group, which related to how a farmer is perceived in Western countries. According to Madeley (2002, p.91):

In Western countries a typical farmer could be a hefty man in a grimy pair of overalls sitting on a tractor. In developing countries, a typical farmer is more likely to be a woman, planting seeds or weeding a field, with a baby on her back.

According to Madeley (2002), agricultural policies and extension education have been framed for the male farmer described above, creating additional burdens on women. In this case study, findings show how planning for the wrong target group increased resilience of farmers who were already well off and left those who needed the extension services out. When agricultural extension education starts benefiting those whose condition is already good, it presents a challenge that should cause educators to ask what can be done to enable women to benefit from such services. Miles (1996), while advocating for a transformative feminism, argued that the poor and non-literate are aware that changing their conditions without changing structures will not lead to any fundamental changes in their condition. Extension education therefore, should be focusing on enabling a process which engages with practical needs of the poor, while also engaging with the strategic needs of the same people. Such extension education will have to engage with the structural issues that enable a reproduction of inequalities, such as gender inequalities. A focus on inequalities will be dealing with the root causes of the inequalities instead of addressing the symptoms.

What this means is that agricultural extension education is not a neutral field where giving people skills or new technologies will automatically enable them to practice what is required. The criteria we set for participation in programmes must be aligned to the inequalities that affect those same target groups. When agricultural extension education moves to the level where it can challenge such entrenched inequalities, we shall be moving towards adult education that does not conform but questions the existing structures. This will allow it to lead to change instead of perpetuating the structures that it finds in place.

5.6.2 Manifestations of risk perpetuated by power dynamics

According to Chambers (1983, p.75), the belief that modern scientific knowledge is linked to wealth and power predisposes people to think that poor people's views are not worth listening to. In this study there were situations where farmers gave their views and were not listened to as presented in the extracts below:

Farmers did not want nakamali and one pleaded with the extension worker thus:
"Musomesa, please do not give me nakamali this time. The last lot of suckers you brought me had a lot of nakamali. Please do not bring me more.

I cannot know which sucker is going to turn out as nakamali. But even then, as long as a sucker has got all the manure and all the attention it needs, it cannot turn out as nakamali (Extracted from Participant observation; informal interviews, March 2008).

We kept hearing this from farmers and the extension worker kept telling me how funny farmers are, that they just want one type of bananas. I asked him why they wanted kisansa and he told me that farmers were never sure of what they wanted saying, Today they ask for one thing, the next day for something else (Extracted from Participant observation, February, 2008).

In both narratives the farmers were clear on what they wanted and what they did not want, but the extension workers were convinced that farmers only wanted the crop varieties they asked for, for the sake of it. However, findings suggest that farmers wanted certain varieties because they produced crops that they could eat or sell, which was the intention of engaging in agriculture in the first place. Farmers' arguments demonstrate how resilience is thought of as

part of life for poor people. If the potatoes produced small vines, the amount of food from a field would be reduced. If they planted Kisansa, they would have no bananas at harvest time, either for sale or home consumption. The question therefore arises, why did the extension workers not listen to farmers who were trying to avoid risk? Findings in this study suggest that the underlying reason why farmers' views were not given a second thought by extension workers could be attributed to the power assumed by modern knowledge.

The link between power and knowledge has been interrogated by different scholars. For instance, Chambers (1983, p. 75) has argued that modern knowledge is always associated with "wealth, power and prestige", attributes that many people desire, causing them to ignore poor people's knowledge. Briggs and Sharp (2004) also attribute the superiority of modern knowledge to its association with progress and development. In this case study, extension workers could have ignored the pleas from farmers because they felt that farmers' knowledge had no positive attribute. That is to say, people's poverty was blamed on their lack of modern knowledge, meaning that knowledge they had was irrelevant to development. Farmers' knowledge was associated with poverty and powerlessness. However, the relevance of knowledge is only recognised when it is located within a system or context. For this case study, we begin to understand the power-knowledge dynamic when we locate it within the wider system within which it was applied.

According to Chambers, 'it is a truism that knowledge is power' (1983, p.75). In the modern system, having knowledge means that one can determine what should be called knowledge, what new knowledge can be created, and what knowledge should flow to the rural areas (Chambers, 1983). Having modern knowledge in this case study meant that the extension worker could determine what was learnt and what was discarded. To have modern knowledge meant having power over people and agricultural extension education. In other instances, having modern knowledge meant having access to symbols of power in modernity such as modern fields, extension workers and a modern status in the community. Agricultural extension education in this case perpetuated the belief that modern knowledge was of superior status and more significant than other forms of knowledge (Chambers, 1983). This superiority was not drawn from the visible impact on poor people's lives, rather it was drawn from its status as modern scientific knowledge. However, the farmers' actions and how they interacted with modern knowledge demonstrate that they did not believe in the superiority of scientific knowledge the same way the extension workers did. An examination of how farmers interacted

with modern knowledge demonstrates the perception of poor people towards scientific knowledge.

Farmers sometimes out rightly refused to cooperate, sometimes leading to the destruction of planting materials as was the case with the potato vines. In the following extract, farmers explained their behaviour to the extension worker thus:

Musomesa, can we tell you the truth? It is tricky to plant potatoes at the beginning of a rainy season. We would never plant when rains were at their peak, and that is why the vines VEDCO usually bring at this time end up rotting (Extracted from Group discussion, April 9, 2008).

What was interesting in this study was not the fact that farmers refused to cooperate, rather it was the reasons they gave for their non-cooperation. In the case of potato vines, farmers explained that:

A lot of rain makes the soil too soft and the plants put all their energy into growing nice looking leaves but when you harvest the food, it is very disappointing. VEDCO usually waits for the wrong time to deliver planting materials (Extracted from Group discussion, April 9, 2008).

In some situations, farmers insisted on their own demands as in the case of the types of banana suckers they wanted. While farmers wanted Kisansa, extension workers gave them any suckers that were available. Farmers' resisted and insisted on their own demands. They listened but resisted with actions. The farmers' actions demonstrate that poor people are not passively waiting to receive content and ideas from educators (Freire, 1972). On the contrary, findings show that when faced with authoritative modern knowledge that they consider irrelevant to their circumstances, poor people ignore it and carry on with their livelihoods. What we need to interrogate is the source of the authoritarian status assumed by scientific modern knowledge. According to Shiva (1993), the authoritative status of modern knowledge emerges from the dominant system characterised by the rise of commercial capitalism. Under capitalism there is an assumption of power over people without modern knowledge, nature and systems, among other things. As a tool for transformation, there was no opportunity for people to engage with such knowledge because it was already a finished product, ready for consumption. In this

case, it had power over people, nature and relations. There were dedicated institutions to produce such knowledge that was intended to be consumed by farmers (Usher et al, 1997). Knowledge was in the hands of a few trained experts who determined the right knowledge to teach because their command of content gave them such power (Brock et al, 2001).

However, under the same system, poor people have the liberty to express themselves about things or knowledge that they feel is irrelevant to their lives. The actions of farmers demonstrate farmers' agency in the sense that they do not just embrace and apply modern knowledge, rather they first weigh how it will affect them and then take a decision. This showed that even modern knowledge was subject to the perspectives of poor people, whom it seeks to transform, as an absence of this leads farmers into the subsistence risk society. Embracing the perspectives of the poor will require extension workers to be aware of the consequences of the knowledge which they seek to promote. Such actions of farmers should help educators reflect on their own practice. For instance, what extension education do we need to ensure that each farmer gets a good harvest? Seeing that small holder farmers know the nature of the crops we promote, how can we work together to promote relevant practices? This will not happen unless we have addressed the structural issues that lead to the denigration of other people's ideas, whether poor or rich. By dealing with structural issues, we shall be engaging with the power debates to re-define what knowledge is, based on people's realities.

I have discussed how risk was enhanced by systemic inequalities. We have seen that when inequalities that underlie any system are not confronted, development programmes tend to augment those inequalities. In the next section, I will demonstrate how all the aspects that I have discussed in the previous sections strengthened each other and increased farmers' risks to bear resemblance to Giddens concept of the 'risk society' (Giddens, 1998, p. 25). According to Giddens, a risk society is one "where we increasingly live on a high technological frontier which absolutely no one completely understands and which generates a diversity of possible futures" (1998, p. 25). In this case, the term risk society is applied to the subsistence nature of farmers and I term it the 'subsistence risk society'. The subsistence risk society drawn from this case is one where there is a mentality where people do not know how to handle challenges that result from their own new technology. Secondly, most of the risks result from people's or organisations' own doing to become 'manufactured risks. Thirdly, even though there is organisation, to a big extent it is coupled with irresponsibility to result in organised irresponsibility. The 'nobody knows' mentality, the manufactured risk and organised

irresponsibility become the three pillars of the emerging subsistence risk society. I call it emerging because the process of its formation is slow and hence takes time.

5.7 The emergent subsistence risk society

According to Beck (2000, p.14), modern technology turns society into a 'laboratory' with no one taking responsibility for the new technology. Furthermore, Beck argues that when society becomes a laboratory, exposure to risk is no longer a personal phenomenon; it becomes a communal/societal phenomenon. In this case for instance, the 'sour' cassava fields of most farmers who had received materials at the same time were destroyed. Furthermore, farmers had already committed their land and labour and other resources to those fields. Any plant that did not yield food or money for the farmer was a total loss that widened the farmers' risk profile.

The discussion of the findings suggests that subsistence farmers are being slowly drawn into more risks with modern agriculture than coping mechanisms. At the same time, the intensity and the continuous occurrence of hazards, suggests that coping with hazards is not a once-off activity, it is part of farmers' everyday struggles. As hazards occur, poor people's livelihoods become exposed to more risk leading to the emergence of a subsistence risk society. Based on Beck's and Giddens' (1998, 2000) theory of the risk society, I will engage with some of the characteristics that have merged to create a subsistence risk society for these subsistence farmers. Firstly, I will engage with the 'nobody knows' mentality and the emergence of manufactured risk as the basis of survival for the risk society.

5.7.1 The 'Nobody knows' mentality

Findings revealed a pattern of events where the challenges that came with new technology were left to the farmers to deal with, because no one knew what to do. For instance in the following extracts, all those involved revealed that they did not know what to do when new technologies went wrong.

... The youngest banana leaves that were starting to grow were drying up. If the middle ones dried up, this would kill the whole plant because as time went on, it would not have any new leaves growing. The extension worker did not know what disease it was and how it could be stopped. He promised that he would find out... (Extracted from Observation, April 18, 2008).

In the above narrative, the farmer who had planted the bananas had to deal with the effects of using modern methods alone. It demonstrated how the consequences of modern knowledge are left for poor farmers to sort out. Farmers' fields were the laboratories for modern knowledge, but the scientists in charge of those 'laboratories' did not know what to do when their experiments did not lead to the required results.

In the next narrative, the extension worker was distributing suckers without prior knowledge of the breed of bananas he was going to distribute. When farmers asked not to be given Nakamali, the extension worker replied thus:

... I cannot know which sucker is going to turn out as nakamali. But even then, as long as a sucker has got all the manure and all the attention it needs, it cannot turn out as nakamali (Participant observation; informal interviews, March 2008).

In the end, the farmer from whom VEDCO was buying suckers confirmed that there was a type of banana called 'nakamali'. From his explanation, that type of banana could neither yield food nor be sold for money. The farmers were avoiding loss brought by a poor harvest translating into lack of food or money. They wanted to narrow their risk profile. Once again, the extension workers did not know about *nakamali* and farmers' fields became a 'laboratory'.

Viewed from the risk perspective, what the extension workers were doing demonstrated the 'nobody knows' mentality of the risk society (Beck, 2000, p.12). According to Beck, when those who are supposed to be in charge, reach a point where they do not know what to do about their own technology, they pave way for a society that is permanently at risk. What made matters worse was that extension workers did not know the extent of the damage, they were also waiting to see what would happen, like the farmers. For instance in the case of *nakamali* bananas, nobody knew how many suckers were *nakamali* at the time of planting. The extent of the damage would only be known when the bananas were already grown and people were ready to harvest, and the bananas take two years to mature. Typical of the risk society, the risk of crop failure was thrust upon the farmers, meaning that risk would be part of their daily lives as long as they were still farming. A question that arises therefore is, why is there the 'nobody knows mentality' in the first place when it comes to modern knowledge?

According to Chambers, part of the reason why the 'nobody knows' mentality thrives is because modern knowledge is not tested in the actual environment before it is passed on to farmers. Chambers has suggested that modern technology should be carefully weighed on its merits before it is sold to the rural poor (1983, p.176). Weighing merits of technology is partly acknowledging that technology does not automatically translate into development everywhere (Shiva, 1993, p.135). All technology therefore, should be interrogated like any other new thing and contingencies put in place for any eventualities. Interrogating new technology would depend heavily on how technology for the rural poor is perceived by those who sell it.

According to Shiva (1993), technology can be viewed from two perspectives. One perspective is that which views technology in terms of western science as she explains below:

Science and technology are conventionally accepted as what scientists and technologists produce, and development is accepted as what science and technology produce. Scientists and technologists are in turn taken to be that sociological category formally trained in Western science and technology, either in institutions or in organisations of the West. These tautological definitions are unproblematic if one leaves out people, especially poor people; if one ignores ecological and cultural diversity ... (Shiva, 1993, pp.134-5).

The second perspective is the

Wider context, where science is viewed as 'ways of knowing' and technology as 'ways of doing', all societies, in all their diversity, have had science and technology systems on which their distinct and diverse development has been based (Shiva, 1993, p.135).

While in the first perspective, technology is synonymous with Western science paradigm, in the second perspective 'science and technology are no longer viewed as uniquely Western but as a 'plurality associated with all cultures and civilisations' (Shiva, 1993, p.135). This perspective is a realisation that all people engaged in any activity have ways of doing that have been developed over a long period of time. Such a view is respectful of all ways of doing, irrespective of whether they were drawn from a formal school or from a backyard in a homestead. Such a view embraces all forms of technology and does not discriminate between technology developed by poor people and that developed by formally trained scientists. Technology worth

its name does not put people's livelihoods in danger. Such technology will ensure that those who are involved in its design take responsibility for its mishaps, thereby overturning the 'nobody knows' mentality. All in all, a view of technology that is cognisant of the shortcomings of technology will have implications for agricultural extension education provision.

The discussion above has demonstrated a gap in the agricultural extension education system. In such a subsistence risk society, farmers would have benefited from extension education which enables them to dialogue with extension workers about their challenges. If the purpose of extending education to farmers is to increase food output and incomes, anything that hinders farmers from achieving those objectives should be confronted. Farmers and extension workers would have benefited from a dialogue about challenges in adopting modern knowledge. A dialogical engagement between extension workers and farmers can only be possible if the power-knowledge dynamic is critically examined. A redefined agricultural extension education, which is definite in purpose, can enable such an engagement to take place. The dialogical process would involve those who are engaged in training of extension workers, those who design new technologies, the potential extension workers and farmers. Such a dialogue would have to be a "loving encounter of people, who, mediated by the world 'proclaim' that world. They transform the world and in transforming it, humanise it for all people" (Freire, 1973, p.115).

5.7.2 Manufactured risk

According to Vandana Shiva, modern technology has led us into a situation where there is ecological inappropriateness. Shiva argues:

Ecological inappropriateness is a mismatch between ecological processes of nature which renew life support systems and the resource demands and impacts of technological processes (Shiva, 1993, p.135).

In this case study, findings have shown that there are increased disasters because some of the demands on the resources available are beyond the possible. When the ecological processes of nature and resource demands of people are not matched, it is the resource base that suffers. In the end, we find that risk is part of everyday lives, mainly caused by the pressure that we put on the meagre resources that we have available. For instance in this case study, farmers did not have land but were being drawn into planting crops on a large scale for money. This put

pressure on the ability of most households to produce food to feed their families. Women did not own land but were required to provide food for their families. The struggle to sustain livelihoods was never ending, often punctuated with hazards as already discussed. Risk was manufactured in the sense that it was as a result of processes that made life a permanent emergency (Beck, 2000). But why has life become a permanent emergency like it is in the modern risk society?

Vandana Shiva (1993) tries to engage with some of the reasons why we are at a point where we no longer care about the limits of the resource base which sustains and renews life. She argues that in the current development paradigm, the need for economic development has overridden the morality around preserving for the next generation. Shiva argues that there is a 'lack of theoretical cognition of the two ends of technological processes, their beginning in natural resources and their end in basic human needs' (1993, p.136). Technology is only praised for the new life that it enables people to have, but the consequences of such new knowledge on the natural resources is not calculated as part of the risk people have to endure. In the end, instead of increasing resilience, it increases vulnerability by widening the risk profile of poor people. And yet, when it comes to bearing the brunt of technological and environmental changes, it is the poor people, who live in marginal areas, who will face the floods, the hailstones, the malnutrition, the famine, among other things.

The above discussion presents a chance for agricultural extension education to reposition itself in the face of technological changes and manufactured risk. It will require that extension education helps people understand the changes that are taking place and how they can adjust to face those changes. In the farmers' knowledge and practices, there was evidence which demonstrated that farmers think about the renewability of life forms. That means that the principle is already there in poor people's everyday practices, it only needs to be incorporated into agricultural extension education. This will require a critical look at the curriculum and into the training of agricultural extension workers.

5.7.3 Conclusion

In this section the discussion has centred on the aspects that make a society grow to become a risk society. We have seen that when there is an existence of the 'nobody knows' mentality, when risk is man-made and people who are supposed to be organised instead claim to be

irresponsible, the end result is a risk society. In this case study, given the nature of farmers' livelihoods, the risk society becomes a subsistence risk society because people are still at the subsistence/survival level. In the next chapter I will discuss the findings to draw conclusions and make recommendations for research, policy and practice of agricultural extension education.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter builds on the discussion in chapter five to make conclusions and recommendations. Having examined farmers' livelihoods, knowledge and the strategies they adopt to cope with risk; in this chapter I engage with how livelihoods can inform agricultural extension pedagogy. In the first section I engage with the principles that could underlie agricultural extension pedagogy, emphasising that they should be based on the circumstances of poor people's livelihoods. I then examine how the process can be executed to enable agricultural extension that is geared towards livelihood security. I conclude this chapter with recommendations for further research and for practitioners of agricultural extension education.

6.2 Towards 'really useful agricultural extension education'

The discussions on farmers' livelihoods, local knowledge and modern knowledge enabled us to reflect on agricultural extension education. For instance what we have learnt from chapter five highlights a critical need for educators to reconsider the approach of agricultural extension education within the subsistence context. Central to this argument, is the view that adult education aimed at livelihoods security should be conceptualised and developed as *really useful agricultural extension education* (RUAEE). The concept of 'really useful' is based on the ideas of Johnson (1979) which were further developed by Thompson (2000). According to Thompson (2000), really useful knowledge is that "knowledge which enables people to both understand the root causes of the circumstances in which they find themselves in order to make changes" (Thompson, 1977, p.2). The notion of understanding root causes is associated with conscientisation in the Freirean pedagogical framework, which was part of the theoretical framework for this study. According to Freire (1972):

Conscientisation refers to a process by which man, not as a recipient but as a knowing subject, reaches a deeper awareness both of the socio-cultural reality on which his life is built and of his ability to transform that reality (p.27).

By the definition given above, really useful agricultural extension education could engage the process of conscientisation to arrive at root causes of a particular situation. Engaging the process of conscientisation will be recognising that people are not receivers of agricultural extension knowledge, but they are knowing subjects. To recognise that people are 'knowing subjects' is to understand that people are conscious of their own situations and limitations. If people are perceived of as knowing subjects, the methods, the purpose and the content of RUAEE among others will also reflect such a perception. In the first instance, considerable attention will be paid to understanding the reality that forms the basis of people's knowing. RUAEE in this case will be geared towards developing deeper awareness or a critical awareness of the circumstances within which farmers exist.

Furthermore, developing a critical awareness will involve a deliberate effort to change/transform the reality as the definitions given above show. According to Freire, men do not live in the world, they exist in the world and their existence is historical, meaning that they are constantly creating and re-creating the world around them (1972, p.71). According to Ryan (2001), recognising that people exist in the world is the beginning of adopting the process of conscientisation. Within the process of conscientisation is developing an 'awareness of' and 'action on' reality, which are the major purposes of any pedagogical process (Ryan, 1973, p.18). When we apply Ryan's understanding to RUAEE, the purpose will shift from the current purpose of passing on modern farming practices to those who do not know. Instead, RUAEE will aim at developing critical awareness and acting on the reality of poor farmers to change it.

In this case, *really useful agricultural extension education* should not only enable people to meet their livelihood needs in a single season, rather it should be knowledge which goes further to address the root causes of livelihoods insecurity, so as to change the lives of people and ensure sustainable livelihoods. To remind ourselves of what livelihoods security means, I will refer to the meaning developed by Chambers & Conway thus:

... A livelihood is secure when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels in the short and long term (Chambers & Conway 1991, p. 6).

What the statement above means in the context of RUAEE, is that extension education should enable people to reduce those situations that put their livelihoods at risk. In addition to ensuring livelihoods security, RUAEE should also address the root causes of livelihoods insecurity instead of only looking at the symptoms. For instance, in the discussion of this case study, I identified inequalities and injustices perpetuated by gender relations and power relations informing the causes of insecurity. Findings also revealed that because VEDCO did not engage with the identified relations, inequalities were enhanced instead of being reduced. This is a gap that RUAEE could engage with and work at filling so that the purpose of extension education is not only immediate provision, but it is sustainable and enables social justice. In focusing on the root causes of livelihoods insecurity, RUAEE will have to engage with the structures, systems and policies that make livelihoods insecurity permanent for the poor. This could be a gap that can be confronted by RUAEE, to enable social justice and challenge the status quo. In remedying social injustice, sustainability will be enhanced. This will be a departure from looking at agricultural extension education as merely a mechanical process through which knowledge is transmitted, to an understanding of agricultural extension education as championing social justice. Developing RUAEE through a conscientising process will be ridding adult education pedagogy of 'merely useful knowledge' meaning 'the kind of knowledge that keeps people in their place and supports the status quo' (Thompson, 1997, p.2), referred to by Paulo Freire as banking education.

The really useful agricultural extension education could be possible if it embraces and reflects the principles of poor people's survival such as the holistic nature of their livelihoods, the interdisciplinary linkages of livelihoods security, the relational nature of ensuring livelihoods' security, and people-centeredness. The major goal of really useful agricultural extension education should be livelihoods security. I will engage with the principles which inform livelihoods security in the following section, to further understand what really useful agricultural extension education should be.

6.3 Principles of really useful agricultural extension education

6.3.1 Holistic

The discussion of farmers' livelihoods and resources showed that farmers thought about all aspects of their lives as one whole. When they thought about their own food, they also thought about how that would impact on the environment around them. According to Sachs (1992), farmers' thinking about the wider environment and their effort to cater for other components of

nature, can be characterised as holistic thinking. Holistic thinking could be one of the principles to inform really useful agricultural extension education. The term holistic here would mean that extension education cannot be reduced to a single lone factor, such as cropping systems, animals or incomes. RUAEE cannot be reduced to a process of transmitting scientific knowledge to those who are assumed not to know by extension workers.

Rather, really useful agricultural extension education would recognise that any livelihood system is a web of complex structures, activities, challenges and coping mechanisms. This would mean that in the planning and design of any extension education intervention the whole livelihood system would be deeply studied and understood. RUAEE would ensure that before any intervention is introduced, a livelihoods' analysis is done to deeply understand the make-up of livelihoods in any particular context. This will only happen if all people concerned including those who are 'being planned for', are personally involved in planning the intervention. Only when livelihoods are approached holistically and in such a participatory manner, will all components of the system be recognised for their importance to that livelihood system. In the end what we shall be talking about as a result of holistic thinking and taking collective action will be *sustainability*. Holistic thinking, however, will work best if all aspects are jointly considered in an inter-disciplinary manner.

6.3.2 Inter-disciplinary

The concept of inter-disciplinarity is drawn from the principles of sustainable livelihoods and is closely related to the holistic principle. This implies recognition that life is composed of different components drawn from different aspects of our lives. Therefore different disciplines are drawn together to interact at all levels so that interventions are not duplicated. To illustrate how the lack of inter-disciplinarity manifests in agriculture, I will use an illustration by Chambers:

In biological sphere ... Agriculturalists are concerned with field crops, not tree crops. Animal specialists are frequently more concerned with veterinary science and animal health than with animal nutrition. Foresters are concerned mainly with protecting trees in forests and with commercial plantations, not growing them on farmers' fields. Hydrologists and irrigation engineers look for physical and mechanical solutions to problems (Chambers, 1983, p.181).

In the above example given by Chambers we realise that every professional is concerned with aspects related to their profession leading to fragmentation of knowledge and life (Shiva, 1992). However, we also realise that the different aspects, though belonging to different 'conventional' disciplines, all belong to a single livelihood. In this study for instance, we saw that people's activities include crop and animal husbandry, nutrition, mulch from forests, rain, etc. In conventional educational approaches, experts on each of the aspects mentioned here would plan for their component in their different departments. Even when there is effort to plan and work together, the conventional thinking still prevails and disciplines compartmentalise their focus. This is what should be countered by RUAAEE.

In this case for instance, RUAAEE would look at environmental, political, social, cultural and economic issues related to a particular livelihood system. This would ensure that training of agricultural extension workers is inter-disciplinary to reflect the nature of the livelihood system. However, inter-disciplinary action can only take place if experts in different disciplines are willing to confront the issues around knowledge and power and instead focus on development. In the literature, I already presented arguments that for many people, knowledge is not about the content that someone has accumulated to become an expert in a particular discipline. Knowledge, especially when it is in a particular discipline, is looked at as something static that must be protected from those who might want to dilute it or reduce the power of experts in that discipline. This means that in order to reach a level of professional maturity, to realise that knowledge is about how useful it is to people, experts must confront their own perceptions of power regarding knowledge. This principle can be made possible through a dialogical process which brings professionals in different disciplines together, based on some of Freire's ideas, especially around dialogue. What I mean is inter-disciplinarity will be possible if professionals engage with each other in a dialogical process, which will confront the systemic issues that have hindered that inter-disciplinary dialogue for many centuries. Inter-disciplinary engagement could be facilitated if the purpose of expertise and professionalism is re-defined in a subsistence context, to put people at the centre of such efforts.

6.3.3 People-centred

The findings provide an opportunity for reflecting on the purpose of agricultural extension education. For instance, we have seen that farmers were mainly concerned about survival in their environment without compromising survival of other species. They adopted knowledge which enabled them to increase resilience by widening the risk profile. The purpose of

acquiring knowledge was farmers' survival. By comparison, when we reflect on the purpose of the agricultural extension education that was being provided, we see that it was aimed at increasing production for the market. Agricultural extension was therefore market-oriented.

Farmers' actions demonstrate that they worked towards becoming self-reliant and in the process, all of them contributed to the process of ensuring self-reliance. Farmers' actions relate to the principle of people-centeredness drawn from the sustainable livelihoods framework, which emphasises social justice, self-reliance and participation in decision making (Chambers & Conway, 1991). Farmers' actions could have been supported by extension education for the values they promoted, but extension workers did not support farmers' actions. This raises a question regarding how VEDCO or any other organisation providing agricultural extension services could be helped to understand farmers' actions in relations to livelihoods security and use those actions as a basis for extension education. RUAEE could make a contribution to helping organisations involved in agricultural extension education provision by engaging with farmers' actions and using them as a basis for their pedagogical process. RUAEE could adopt the people-centred principle and ensure that all issues covered by the principle are interrogated, understood and put into practice. What would this entail in a subsistence context?

While people-centeredness is a useful principle, if it is not properly understood, it can be misrepresented within different development debates for the values it represents. This is where the observations in this case study could provide a better understanding of the concept. Firstly, in a subsistence context, people-centeredness would mean that food is grown for self-provisioning and that would be the basic purpose of RUAEE. By emphasising self-provisioning first, RUAEE would ensure that people are self-reliant and a major livelihood outcome for poor people is achieved. This would also prompt reflection on the purpose of work and importance of knowledge. In the current paradigm of production, work is that which enables one to produce for the market (Hart, 1992). In the subsistence context, work should mean production of enough food for self-provisioning and only then should the surplus be sold. Hart (1992, p.211) has proposed that 'if we want to survive, physically, psychologically and spiritually, we need to learn new, alternative ways of dealing with nature, with each other, and with ourselves'. What Hart proposes is what the purpose of RUAEE could be, that is, extension education which recognises that nature and people are what should form the basis of extension education, not crops, accumulation, markets and profit. By viewing work from the survival and livelihood perspectives, we counter the conventional, scientific thinking that all work should be motivated

by the need to accumulate more. If work is for survival, then what we are actually engaging with is bringing people's survival back to the centre of work and development, hence people-centeredness. Such thinking is not to argue that increasing income is not important, rather it is to emphasise that increasing incomes is just one component of a livelihood system.

Going beyond self-provisioning, RUAEE should also emphasise the aspect of social justice, going beyond what the current agricultural extension education and the people's own understanding were able to do. Social justice would involve people engaging with the systems and structures that perpetuate injustices like patriarchy and class inequality, as we saw in this case study. RUAEE by its nature should enable people to understand the gender-based and class-based injustices rooted in culture and history, in order to change them. Such understanding could be developed through a deep dialogical engagement with extension workers, and men and women in the community, to enable them to understand the root causes of those injustices. By so doing, the aspect of participation in decision making would also be tackled, enabling a holistic people-centred process. Inherent in the concept of people-centeredness is recognition that in order for people to make use of RUAEE, their relationships with others and with nature must be interrogated, hence the relational principle.

6.3.4 Relational

Developing an understanding of people's livelihoods and closely related to the concept of people-centeredness, is the understanding that relationships with others are an important part of ensuring livelihoods' security. The findings revealed how people prioritised relationships with others over incomes, for instance. The findings emphasise the argument by Paulo Freire that man is 'not only in the world, but to engage in relationships with the world' (1973, p.43). The findings should cause us to reflect on what the purpose and process of RUAEE should entail. We should know that the process of RUAEE involves people, not as solitary beings, but as people involved in interactive, supportive and productive relationships. Relationships determine what is learnt and what is not learnt as evident in the findings. The findings show that the relationship between extension workers and farmers was characterised by a conscious understanding of 'educational attainment, urban status and roles as bearers and dispensers of modern knowledge' (Chambers, 1983, p.201). Given that farmers acknowledged the status of extension workers as agents of modernity, farmers maintained the presumed authority and superiority by extension workers and listened to them but decided not to implement everything.

Such relationships are what RUAEE agents such as extension workers, researchers, scientists among others, could engage with the authority and superiority of the current regime of extension education to engage with the processes that enable them to thrive. For instance, the superiority and authority assumed by extension agents could be confronted and interrogated to help them also develop critical awareness about their own work. To create such an engagement, RUAEE agents will have to understand the cultural context within which people devise mechanisms for survival. RUAEE agents will have to realise that education is cultural action and not an act of making deposits in poor people's minds (Freire, 1973). To view education as cultural action, RUAEE agents will need a shift in perception, to one that believes that:

Men are aware of their activity and the world in which they are situated. They act in function of the objectives which they propose, have the seat of their decisions located in themselves and in their relations with the world and with others, and infuse the world with their creative presence by means of the transformation they effect upon it (Freire, 1972, p.71).

What Freire explains above could be the basis of RUAEE. Education starts with a belief that people are resourceful and that they are capable of acting on their own circumstances for the better. Their interaction with people and things around them are all considerable learning avenues for extension education. This will enable an end to the view that worthwhile knowledge is constructed by special people in special places. Then, the view that promotes scienticism and technicism, that is science and technology for its own sake, will be discarded. RUAEE could build on the relationships and interactions people have to enable a dialogical process around what is really useful knowledge and what is merely useful knowledge (see Thompson, 2000). Knowledge will then be demystified for all people to engage in the construction of really useful knowledge, aimed at livelihoods security.

6.3.5 RUAEE aimed at livelihoods security

In discussing the farmers' livelihoods, resources and risk profile, the findings showed that what poor people aim at is security of their livelihoods. What this means in real terms is that they avoid risk, by minimising exposure. They aim their efforts at increasing resilience of whole systems. They think about labour, health, food, education and other things concurrently and continuously. They try to maintain a balance and in some cases they do this by losing some

assets to gain security of a whole system. From the findings we learn that at the end of it all, when farmers work and try to survive, what they are really aiming at is livelihoods security. Such revelations cause us to reflect on the importance of work, on the meaning of survival, on what it means to have a secure livelihood and on the importance of education and knowledge in the process of livelihoods security.

Such reflections should form the basis for RUAEE. This would mean that RUAEE is in itself a process of reflection on current practice in relation to the importance of work, the meaning of survival, and livelihoods security. RUAEE should enable us to reflect and engage with what RUAEE should look like. The ultimate goal of RUAEE should be to enable people to establish a balance in their lives to achieve livelihoods security. This would ensure that an in-depth livelihoods analysis is done and the concept of security is interrogated, to understand what it means for different people confronted with different circumstances. Does security mean the same thing for a farmer with land and one without fees for her/his child for instance? Does security mean the same thing for both men and women? These differentials in the understanding of issues should form the basis for differentiated education and action aimed at making sure that each person has secured their livelihoods in the best way they can.

What I explain above is not to suggest that each farmer or each household should be planned for separately and individually. Rather, it is to acknowledge that people are different and have different pressures which should not be disregarded when engaging with them. This will enable a pedagogical process that gives a chance for each person to participate in whatever is going on. Such a process enables the extension worker to merely become a facilitator, one who enables people to reach a level of consciousness where they believe in themselves enough to generate knowledge to transform their own circumstances.

In this section I have described the principles underlying really useful agricultural extension education. I have explained that the principles build upon the basis of poor people's livelihoods to ensure livelihoods security. I have argued that in order to ensure an understanding of the root causes of their circumstances, poor people should be exposed to a pedagogical process that is informed by the holistic nature of their circumstances, an inter-disciplinary approach, and a people-centred pedagogy which acknowledges the importance of human relationships. By ensuring such a pedagogical framework, RUAEE will be working towards livelihoods security.

To expand the notion of really useful agricultural extension education, I will explain what the process of ensuring RUAEE will entail in the next section.

6.4 An engagement with the process of RUAEE

6.4.1 Builds really useful knowledge

In any pedagogical process there is exchange and construction of knowledge as far as the methods used allow it. The findings revealed that worthwhile knowledge is perceived differently by farmers and by extension workers. While for farmers worthwhile knowledge is what enables them to avoid risk and increase resilience of livelihoods, to the extension workers, worthwhile knowledge is that which they learn in formal institutions and transmit to farmers. The two perceptions relate to the knowledge-power debates especially about what counts as knowledge. From the extension workers perspective, knowledge aimed at modernising agriculture, which is scientific knowledge, is what they perceive to be worthwhile knowledge. The reason why scientific knowledge is perceived to be the only worthwhile knowledge has a lot to do with the conviction that it leads to higher crop output and therefore increases the presence of farmers' products in markets (Shiva, 1993). On the other hand, farmers' perception of worthwhile knowledge is that which enables them to mitigate the effects of the hazards that their lives face. In the literature, the question of worthwhile knowledge was very significant and scholars agreed to disagree, leaving a gap as regards who qualifies knowledge as worthwhile and who should refute such qualifications.

RUAEE drawn from the findings could bridge the gap and encourage both scientists and local people to construct knowledge with the aim of constructing 'really useful knowledge' for livelihoods security. In fact, Hart has argued that "with its [subsistence work] overall orientation towards use and life, and with its preserving rather than destructive attitude, subsistence labour can serve as a model for a truly human vision of work and life" (Hart, 1992, p. 177). Through a dialogical process, science and local knowledge could be enabled to create synergies by learning from each other. The reason for this knowledge exchange would be because as findings showed, there was no form of knowledge, whether scientific or local, which managed to meet all needs of survival of farmers in the context of a changing environment. That means that there is need for local knowledge to work with science. RUAEE could bring the experiences of people like farmers in this study to engage in a sharing and learning process, because farmers showed that for them there was no right or wrong knowledge. RUAEE in this

case, could promote the construction and usage of knowledge whose aim would be to enable people to secure their livelihoods. This would all be done in the subsistence context.

However, we realise that RUAEE can only aim at livelihoods security if the people involved agree that livelihoods security for poor people is important and make a deliberate effort to help the poor. This would affect the authority and superiority (Briggs & Sharp, 2005) enjoyed by scientists and all holders of scientific knowledge. Therefore the other issue that RUAEE would engage with would be helping such people whose practice and profession would be affected, to learn to unlearn the politics of their own practice and focus on the goal of their activities and actions. This should not be assumed to be any easy task, but as Freire (1973) has counselled, such actions are as painful as child birth, but it is important that they are carried out if there is going to be transformation. For transformation to happen, some hard questions have to be posed, for instance:

- How will the process of RUAEE build really useful knowledge? What needs to be in place/to be done to ensure that it is building really useful knowledge?
- How will it ensure that local knowledge and modern knowledge are negotiated and a consensus reached?
- How will it develop an understanding of the local environment?
- How will dialogue be established?
- How will knowledge shape action?

I propose that action research be undertaken to establish how in practical terms, really useful agricultural extension education would be conducted. The action research could be undertaken in different organisations which implement programmes among poor people. This would ensure that there is room to influence programme development and design, implementation and the effects of the programme on poor people's strategies.

The RUAEE being proposed calls for the repositioning of the extension workers as educators, as opposed to their status as scientists. This would mean that they have to learn to relearn their own convictions and beliefs about their expertise and practice. This will not happen automatically, but they have to be convinced that they have nothing to lose, but a lot to gain. A process could be initiated on how to start the relearning process for extension workers. Such a process could be guided by adult educators or by principles of adult learning tailored to the circumstances and practice of the extension workers. The adult educators involved in this

process will have to study and internalise the principles of RUAEE, to provide the lenses through which extension workers visualise extension education.

6.4.2 Negotiates local and modern knowledge

According to the findings, negotiation to enable livelihoods security stood out as one of the useful components in ensuring livelihoods security. Negotiation involved weighing side effects on using or applying both forms of knowledge and taking the one that worked best in the different circumstances.

One of the most important aspects would be to enable a negotiation process between local knowledge and modern knowledge. What this means is that RUAEE could be focused on enabling a negotiated pedagogy. A negotiated pedagogy could be ensured through an engaging process involving farmers, extension workers, educators, scientists, marketers and community development workers. The process of enabling a negotiated pedagogy could be built on the ideas of Paulo Freire's critical pedagogy. According to Giroux (2010), critical pedagogy is:

The education movement guided by both passion and principle to help students develop a consciousness of freedom, to recognise authoritarian tendencies, connect knowledge to power and agency, and to learn to read both the word and the world as part of a broader struggle for justice and democracy (p.335).

Giroux's ideas expressed above, give us the purpose of a negotiated pedagogy. The breakdown of a critical pedagogy is what RUAEE could entail. For instance, RUAEE has to be guided by passion and principle. In the passion is where extension educators can find the understanding they need to engage in the process. To ensure such pedagogy, the process has to be guided by faith in people (Freire, 1972). According to Freire, educators, in this case extension workers 'require faith in man, in his power to make and remake, to create and re-create, faith in his vocation to be more fully human' (Freire, 1972, p.63). It is only with such faith that extension educators could project a negotiation between local and modern knowledge.

However, to project that modern and local knowledge can exist amicably in the same context; there will be a need to understand power relations and how they influence livelihoods security.

The examination of power relations could be done through the critical pedagogy process where all people involved learn to read the word and the world with the sole purpose of ensuring social justice and democracy (Giroux, 2010). In reading the word and the world, the poor will understand that they also have something to contribute to their own reality. The role of the extension educator will be to ensure that all those concerned are in dialogue to contribute to the dialogical process.

6.4.3 Understands the local environment

According to findings from this case study, the local environment was very diverse and significant to livelihoods. For instance, there was a strong cultural base that enabled livelihoods security in some case and insecurity in other cases. The activities and crops of farmers were diverse, as well as their livelihoods. Relationships were also part of the survival strategies. The significant thing about the local physical environment was that farmers' livelihood strategies were tailored to respond to the nature of the local physical environment. However, sometimes the challenges that farmers faced resulted from the kind of environment. For instance some of the gender biases were ingrained in culture that they ended up causing livelihood insecurity. When the local environment presents farmers with challenges that neither they, nor organisations like VEDCO can handle, we are called to reflect on extension education as regards the physical environment where it is supposed to be implemented.

In my view, RUAEE could make a contribution to making sure that agricultural extension understands the local environment because by its nature, RUAEE enables people to "*understand their circumstances*" (Thompson, 2000). Understanding circumstances could involve a deep engagement with the subsistence context, with the orientation that consciously acknowledges the natural foundation of human life, the need for effort, or work, to produce and maintain that natural foundation, leaving no room for a dualistic opposition between man and the social world (Hart, 1992, p.213). Scholars, such as Freire (1972, 1973) and Hart (1992) contend that the reason why people do not see a relationship between their activities and what happens in the environment around them, is because they feel detached from that environment. People perceive their activities to be in the world, but do not exist with it (Freire, 1972). In order to understand their circumstances, RUAEE can enable people to learn to view their lives and activities in relation to the environment around them, and by so doing, their focus will be on sustainability and not just development.

Furthermore, understanding circumstances has a purpose linked to it, which is transformation. According to Freire (1972), if people do not critically engage with their circumstances, they will not be able to transform/change those circumstances. Critical engagement here refers to critical reflection and action, a process of reading the word, according to Freire (1972). Critical reflection could involve questioning why circumstances are the way they are which would be the process of arriving at root causes of those circumstances. Critical reflection could be accompanied by action because it is part of the process of naming the world. According to Freire:

When a word is deprived of its dimension of action, reflection automatically suffers as well; and the word is changed into idle chatter, into *verbalism*, into an alienated and alienating 'blah'. It becomes an empty word, one which cannot denounce the world, for denunciation is impossible without a commitment to transform, and there is no transformation without action (Freire, 1972, p.60).

In the above quote, Freire ties all dimensions of critically understanding the local environment together. In the first place, there is understanding of what is going on, of the issues affecting people and how they are responding to them, which would be a comprehensive livelihoods analysis. Secondly, people start to question why things are the way they are for all the livelihoods activities, hazards, strategies, outcomes, among others. This would end with taking action about the root causes arising from questioning why things are the way they are. By the time this process is done, depending on how the analysis is done, there could be a critical understanding of the local environment enabled by RUAEE. The basic part of the methods which can be used to enable transformation is dialogue.

6.4.4 Dialogical

The discussion of the training process VEDCO used and the way extension workers interacted with farmers showed that there was little room for dialogue. The training process was characterised by transmission/extension of knowledge from those who knew to those who did not know. The relationship between the extension workers and farmers showed that the extension workers assumed to have more and better knowledge than the farmers. I concluded that there was a lot of 'banking' of agricultural knowledge, than dialogue. It was important therefore to engage a dialogical process in agricultural extension to enable livelihoods security. A dialogical process could be one of the basics of RUAEE, because all the processes described above cannot take place unless they are mediated through dialogue. What would

dialogue entail in this context? To deeply understand how a dialogical process can enable transformation/change/livelihoods security, I will build on Freire's understanding of dialogue that I explained in chapter 2 (section 2.2.4.1).

According to Freire:

Dialogue is thus an existential reality. And since dialogue is the encounter in which the united reflection and action of the dialoguers are addressed to the world which is to be transformed and humanized, this dialogue cannot be reduced to the act of one person's 'depositing' ideas in another, nor can it become a simple exchange of ideas to be 'consumed' by the participants in the discussion (1972, p.61).

Freire's explanation of dialogue in the above quote gives us an idea of what dialogue should entail and how it should be carried out. Firstly, dialogue allows people to reaffirm their existence as human beings and is also part of that existence. It is the means through which we understand our humanness and also our own reality. Secondly, dialogue is the basis of the process of reflection and action to name the world. Without dialogue, there cannot be reflection on reality and action for transformation. Instead, there will be 'verbalism' and 'activism', according to Freire (ibid, p.61), actions which are not committed to transformation. Thirdly, dialogue involves active participation of all people irrespective of their social, physical or spiritual standing. There should not be depositors or consumers of knowledge, both of which are passive roles in a process. There should not be anyone interpreting and speaking for any person in this process, because all people are capable of representing their own views.

The considerations given by Freire about dialogue are important for RUAEE because this study showed that all farmers had their views about their own circumstances. Farmers' views were mainly drawn from their life experiences with different crops. When RUAEE emphasises dialogue as a means to achieve change of people's circumstances, it shows how much it values the experiences of different people and gives them room to learn from those experiences. In so doing, local knowledge would also be given a chance to stand out and be recognised as knowledge because of its concrete representation of the reality (Shiva, 1993). This would not only apply to farmers/the poor/the underprivileged, rather the dialogical process could include all people involved in the RUAEE process.

Dialogue is not expected to begin when people are together learning; rather dialogue should begin when the extension educator is planning what content to consider for a group of people. Freire explains that:

... The dialogical character of education as the practice of freedom does not begin when the teacher-student meets the students-teachers in a pedagogical situation, but rather when the former first asks himself *what* his dialogue with the latter will be *about*. And the preoccupation with the content of dialogue is really the preoccupation with the programme content of education (Freire, 1972, p.65).

To demonstrate what Freire means in the quote above, I could use the example of the evaluation of training in this case study. At the end of the training when farmers were asked to evaluate the programme, they asked to learn about things that were not planned as part of the package of the training. What Freire suggests provides an answer to the question of what content extension education should focus on. RUAEE could provide an enabling process where educators are encouraged to engage in dialogue before planning trainings so that what comes from poor people provides a framework for the content of pedagogy instead of what comes from professionals. However, this will all depend on how far professionals are willing to engage with the poor and for what reasons. This is because Chambers (1983) has argued that outsiders or development workers and educators tend to equate poverty to ignorance, forgetting their own ignorance about poor people's circumstances. To achieve such a deep understanding of poor people's circumstances, all the issues relating to RUAEE described in the previous chapters will have to be fully understood first and interrogated to transform them into a transformative and dialogical pedagogy. The guiding principle will be an understanding that no method or pedagogy is static, rather they are all in a constant process of change and they are subject to interrogation like any other system.

6.4.5 Engages with subject-object relations

The findings revealed that farmers, based on their experiences with farming, had opinions and ideas about how they wanted to farm to get food and money. On the other hand, VEDCO also planned and implemented an intervention to enable farmers to grow food and sell to increase their incomes. In the training process however, it was the views of VEDCO's extension workers which took priority over farmers' views. In the end, farmers decided to pick what worked for

their livelihoods from the extension workers and leave out what did not work for them. The process of extension education was reduced to a 'simple relation between a Subject and a knowable object' (Freire, 1973a, p.134). The nature of VEDCO's intervention and the responses by farmers enable us, as educators; to reflect on the relationships between those who we consider to be poor and those who want to help them out of poverty. To engage in the process of reflection, we need to understand how we come to know through our relations with the world and how knowledge is part of a wider communication process.

According to Freire:

Just as there is no such thing as an isolated human being there is also no such thing as isolated thinking. Any act of thinking requires a Subject who thinks, an object thought about which mediates the thinking Subjects, and the communication between the latter, manifested by linguistic signs. Thus the world of human beings is a world of communication. ... The human being acts, thinks, and speaks on and about his reality, which is the mediation between him and her and other human beings who also act, think and speak (Freire, 1973a, p.134-135).

What Freire lays out above is what could guide the process of really useful agricultural extension education. Firstly, there are subjects, who are the extension workers and the farmers. The subjects get involved in a thinking process about their reality to act upon it and change it. Secondly, there is the object, which in this case could be the purpose of the thinking and communication process. The object or content of the communication process is what would mediate the communication process. Thirdly, there is the communication, that is, the content of the engagement/dialogue between the people involved. This would ensure that the depository nature of the current regime of agricultural extension education is displaced by a more engaging dialogical process of communication. In this process, according to Freire, there would be 'no passive Subjects' (Freire, 1973a), p.136).

However, for such a process of communication to be possible, issues of power and how it affects knowledge construction and recognition will have to be interrogated first. This is because the current regime of agricultural extension is underpinned by a conception of knowledge with a sharp divide between scientific knowledge based on objective reality and local knowledge based on people's experiences. Scientific knowledge in this case is associated with power, because of its detachment from reality, making it possible for it to be applied in

different situations. This makes scientific knowledge easy to transplant to other situations. Local knowledge on the other hand is perceived as less powerful because of its association with a local context, its origin from unschooled people and the difficulty in transplanting it to other situations. With such a perception of a divide between the two forms of knowledge, it becomes very difficult to engage in a dialogical communication process because scientific knowledge will assume its power over local knowledge. For such a perception to be confronted, we shall have to look to 'really useful knowledge' to enable a different understanding of knowledge.

The discussion of livelihoods for instance revealed that being scientific alone, does not guarantee livelihoods security. Similarly, the same discussion on livelihoods revealed that being local alone did not guarantee that local knowledge led to livelihoods security. The scenario where both forms of knowledge are not enough calls for a different perception of knowledge which resonates with people's reality and livelihoods. Such an understanding could be developed by interrogating three issues about knowledge. Where is knowledge supposed to come from? What is the purpose of knowledge? Whose interests does it serve? To answer these questions is an attempt to define knowledge for livelihoods security. Therefore, I will draw on the ideas developed by Roberts (2008) about how to ensure food security, to engage in a discussion about the nature of the pedagogical process I propose. Based on the views of Roberts (2008) knowledge is *of*, *by* and *for* the people (2008, p.52).

The understanding that knowledge is *of* people is to acknowledge that knowledge originates from people's livelihoods and realities. Such an understanding enables educators to engage with livelihoods first in order to understand the reality for the success of the educational intervention. In fact, Freire (1972) emphasised that worthwhile knowledge is that which permits a person to explore their world, understand and change it. This would help confront the view that worthwhile knowledge is that which is produced through a process detached from reality. Furthermore, it would restore faith in people especially for educators to learn to trust that even the poor can participate in the knowledge construction process.

Secondly, really useful agricultural extension education could be informed by the idea that knowledge is constructed by the people. This means that knowledge is constructed by people who are going to use it to change their own circumstances. Such an understanding would cause educators to start exploring how people construct their knowledge, a process that I

deeply engaged with in this study. From the findings, for instance, we were able to understand that people create and recreate knowledge through the activities they are engaged in, especially for the security of their livelihoods. A view that looks at people as knowledge creators will try to look out for those dialogical spaces where knowledge is created and recreated to nurture and develop it.

Thirdly, based on Roberts (2008), knowledge is for the people. This would mean that the purpose for which we create knowledge is so that it helps people, especially when we are dealing with the poor. Knowledge will then be considered worthwhile if it is able to meet the livelihood needs of the people who engage in creating and re-creating it. In acknowledging that knowledge is supposed to serve people's interests, we shall be emphasising a kind of thinking which emphasises that:

The truth is neither born, nor simply represented by the self-enclosed, synthetic world of data and information which is based on omissions and denials, but by a thinking which reaches backward to illuminate the practical and epistemological origin of knowledge, data, or information, and forward to assess not only their applicability, but also the practical consequences of their use (Hart, 1992, p.161).

The kind of truth emphasised by Hart, in the above quote could be the thinking that guides RUAEE especially if it is to achieve livelihoods security. It does not only stop at the knowledge that is produced, its major concern is with the origin of knowledge, process of knowledge construction, applicability and the consequences of applying such knowledge. Furthermore, it could be a continuous process of engaging with and interrogating any knowledge such that by the time it is applied, it is not as detached from life.

6.4.6 Implications for agricultural extension research

In the previous sections of this chapter, I advocated for a transformative pedagogy in agricultural extension education. A transformative pedagogy will inevitably have implications for research in agricultural extension in general, and extension education in particular. In the following subsection I will engage with some of those implications.

Firstly, research to promote subsistence agriculture will need to be re-focused back to what is most important to subsistence farmers. From this study I have pointed out that food scarcity

and hunger are a reality for many people who grow crops. In this same study, I have shown that the priorities of agricultural extension education are mainly centred on modernising the subsistence farming sector, albeit resulting into livelihoods insecurity. The resulting livelihoods insecurity shows the existing gap that can be filled by further research. The research agenda needs to be refocused to ask questions that resonate the philosophy of RUAEE. For instance, what kind of agricultural extension education is required to enable poor people produce food to eat? How can educators and farmers work with scientists to promote crops and farming systems that withstand weather changes and other natural disasters? Asking these and many other questions on subsistence agriculture will bring back self-provisioning to the political agenda locally and nationally.

Secondly, I have proposed that educators need to reflect on their practice and act to transform their own circumstances, mainly informed by Freire's (1972) ideas on praxis. Freire (1972) advocates for people to engage deeply in a process of reflection and take action based on such reflection. Therefore research needs to be carried to understand how praxis can inform the predominant modernist agenda. For instance how can the poor be organised to respond to the modernist agenda? How can we enable a reflective process that does not only solve immediate problems, but also focuses on the strategic needs?

Thirdly, having understood how structural issues affect agricultural extension provision, it is important that agricultural extension education research and policy engages with how to manage them. Research could explore any other cases where people have engaged with structural issues and draw lessons from what they have done. For instance, research needs to be carried out about to understand the place land and property rights in livelihoods security. Educators could explore structural issues affecting their own communities with the aim of engaging with them locally through an action research process. This will ensure that strategic structural issues like power, social injustice and others are handled alongside the immediate like food shortages and unfavourable weather patterns, among others.

6.5 Conclusion

This chapter serves to engage, discuss and understand how really useful agricultural extension education could provide a much needed alternative to the current agricultural extension regime. The insights about farmers' livelihoods and their risk profile provided a foundation for a re-focused pedagogy of agricultural extension education.

Working with farmers on this study generated many issues around struggle, survival, risk, knowledge and intricate ways of understanding and living in a subsistence context. The struggle for survival is a constant reminder of what poor people go through to survive. Their lives remind us, development workers and educators, that we are implicated in the reasons why the poor go hungry everyday, directly or indirectly. Their circumstances illuminate the social and systemic injustices in our societies, hence the continuous need to ensure justice. Their survival strategies provide the hope for learning, re-energising and redefining adult education and development work to ensure security. Engaging with their survival strategies re-energises us as adult educators that if we learn our way out of the current regime of development work, and work and learn from the people we work with, we shall contribute positively to the fight against hunger and poverty. Educators and development workers however, need to reposition themselves to learn if the current regime of development work is to be confronted to make things better.

The farmers' experiences, with the intervention by VEDCO, are a constant reminder of how development agencies with good intentions get hijacked along the way by the views of the prevailing development paradigm and work against livelihoods security instead of ensuring it. Working in such contexts challenges adult educators and development workers to continuously reflect on their personal and institutional ideologies and practices with the intention of fighting injustice.

In the final analysis, this case study has opened a new chapter in the practice of agricultural extension education. The *really useful agricultural extension* pedagogy it advocates for provides a vision of how development could be achieved in the future. This is part of the advocacy to bring back people into development practice, and not only to write and talk about it, but to deliberately advocate to transform it. The principles and process of RUAEE demonstrate a humanisation process, where people are given their due respect as humans,

with ability to think, create and act on their own circumstances (Freire, 1972). In Freire's words, people "organise themselves, choose the best response, test themselves, act and change in the very act of responding. They do all this consciously, as one uses a tool to deal with a problem" (Freire, 1973a, p.3).

REFERENCES

- Adato, M., & Meinzen, D. (2002). Assessing the Impact of Agricultural Research on Poverty using the Sustainable Livelihoods Framework: *IFPRI FCND Discussion Paper* (128).
- Agrawal A., (1995) 'Dismantling the Divide between indigenous knowledge and Scientific knowledge. *Development and Change* 26(3). Pp413-220).
- Akhter, F. (2001). Seeds in the Women's Hands: A symbol of food security and solidarity. *Development*, 44(4), 4. Aldine Publishing.
- Alexander, N. (2009). *Let us return to the source. In quest of a humanism of the 21st century* (Publication.: <http://pambazuka.org/en/category/features/59678>
- Ardington, E., & Lund, F. (1996). Questioning Rural Livelihoods. In Ellis, F. & Lipton, M., (Eds.), *Land, Labour and Livelihoods in Rural South Africa*. Durban: Indicator Press.
- Ashley, C. (2000). Applying Livelihood Approaches to Natural Resource Management Initiatives: Experiences in Namibia and Kenya. *Overseas Development Institute, Working Paper*(134).
- Ashley, C., & Carney, D. (1999). *Sustainable Livelihoods: Lessons from early experience*. DOA: 30 November 2007 from <http://www.eldis.org/vfile/upload1/document/0902/DOC7388.pdf>
- Atim, D., & Ngaka, W., (2004). The Evolution of Adult Education in Uganda. In Okech, A. (ed) *Adult Education in Uganda. Growth, Development , Prospects and Challenges*. Kampala: Fountain Publishers.
- Babbie E. R., (1999). *The Practice of Social Research*, Oxford University Press, Oxford.
- Babbie E.R & Mouton J. (2001) *The Practice of Social Research, South African Edition*: Capetown: Oxford University Press Southern Africa.
- Babikwa, J. D. (2003). *Environmental Policy to Community Action. Methodology and Approaches in Community-Based Environmental Education Programmes in Uganda*. Rhodes University, Johannesburg.
- Babikwa, J. D. (2004). Education and the Creation of Sustainable Rural Communities in Uganda and Japan: Some Lessons from the DESD [Electronic Version]. *UNU-IAS Working Paper*, 46,
- Bacon, C. (2005). Confronting the Coffee Crisis: Can fair trade, organic and specialty coffees reduce Small-scale farmer vulnerability in Nothern Nicaragua? *World Development*, 33(3), 497-511.
- Bahigwa, G., Rigby, D., & Woodhouse, P. (2005). "Right Target, Wrong Mechanism? Agricultural Modernisation and Poverty Reduction in Uganda". *World Development*, 33(3), 481-496.

Bala, A., & Gheverghese, G. J. (2007). Indigenous Knowledge and Western Science: the Possibility of Dialogue. *Race and Class*, 49(7), 39-61. DOA: 20 November 2007 from <http://rac.sagepub.com/cgi/content/abstract/49/1/39>

Bankoff, G. (2004). The Historical Geography of Disaster: 'Vulnerability' and 'local knowledge' in Western Discourse. In Greg Bankoff, Georg Frerks & D. Hilhorst (Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 25-36). London: Earthscan.

Bassey, M. (1999). *Case study research in educational settings*. Philadelphia: Open University Press.

Bastiaansen, J., Herdt, T. D., & D'Exelle, B. (2005). Poverty Reduction as a Local Institutional Process. *World Development*, 33(6), 979-993.

Bebbington, A. (1993). Modernisation from Below: An Alternative Indigenous Development. *Economic Geography*, 69(3), 20.

Beck, U. (1992). *Risk Society. Towards a new modernity*. London: Sage Publications.

Beck, U. (1998). Politics of Risk Society. In J. Franklin (Ed.), *The Politics of Risk Society*: Polity Press.

Beck, U. (2000). *The Brave New World of Work*. New York: Polity Press.

Bello, W. (2001). Structural Adjustment programmes. In E. Goldsmith & J. Mander (Eds.), *The case against the global economy and for a turn toward localisation*. London: Earthscan Publications.

Bembridge T.J. (1991) Practical guidelines for extension workers – a field manual. Development Bank of South Africa, Gauteng.

Bennholdt-Thomsen, V. (2001). What really keeps our cities alive, money or subsistence? In V. Bennholdt-Thomsen, V., Faraclas, N., & Werlhof, C.V., (Eds.), *There is an alternative: Subsistence and world wide resistance to corporate globalization*. London: Zed Books.

Bennholdt-Thomsen, V., Faraclas, N., & Werlhof, C. V. (Eds.). (2001). *There is an alternative: Subsistence and worldwide resistance to corporate globalisation*. London: Zed Books.

Briggs, J. (2005). The use of indigenous knowledge in development. Problems and Challenges. *Progress in Development Studies*, 5(2), 99-114.

Briggs, J., & Sharp, J. (2004). Indigenous Knowledges and development: A post-colonial caution. *Third World Quarterly*, 25(4), 15.

Brock, K., Cornwall, A., & Gaventa, J. (2001). Power, Knowledge and Political Spaces in the Framing of Poverty Policy. *IDS working paper*(143).

Brown, M. E. (2006). Assessing Natural Resource Management Challenges in Senegal using Data from Participatory Rural Appraisal and Remote Sensing. *World Development*, 34(4), 16.

Burkey, S. (1993). *People First; A guide to Self-Reliant, Participatory Rural Development* London: Zed Books.

Bush, R. (2007). *Poverty and Neoliberalism. Persistence and Reproduction in the Global South*. London: Pluto Press.

Busingye J. D., & Keim, W., (2009) The Political Battlefield: negotiating space to protect indigenous and traditional knowledge under capitalism. *International Social Science Journal* (195) pp.37-54.

Busingye, J. D. (2005). "One size fits all?" A Study into the Participation Dynamics of Adults in the Functional Adult Literacy Program in Mwizi Subcounty, Uganda." University of Kwazulu-Natal, Durban.

Butagira, T. (2009, 10 May). Uganda: Govt in dilemma as food shortage bites. *The Daily Monitor*.

Cannon, T., Twigg, J., & Rowell, J. (2003). *Social Vulnerability, Sustainable Livelihoods and Disasters. Report to DFID Conflict and Humanitarian Assistance Department (CHAD) and Sustainable Livelihoods Support Office*. London: DFID. (DFID o. Document Number)

Cardona, O. D. (2004). The Need to Rethinking the Concepts of Vulnerability and Risk from a Holistic Perspective: A Necessary Review and Criticism for Effective Risk Management. In Bankoff, G., Frerks G., & Hilhorst, D.(Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 37-51). London: Earthscan.

Carney, D. (1998). Approaches to Sustainable Livelihoods for the rural poor: Overseas Development Institute Poverty Briefing. DOA: 21st September 2007 from <http://www.odi.org.uk/resources/download/2276.pdf>

Carney, D. (2004). Recognising and addressing risk and Vulnerability constraints to proper agricultural growth [Electronic Version], from <http://www.livelihoods.org/agriculture/vulnerability.html>

Carney, D. (Ed.). (1998a). *Sustainable Rural Livelihoods. What contributions can we make?* London: DFID.

Carney, D., & Ashley, C. (1999). *Sustainable Livelihoods: Lessons from early experience*. London: DFIDo. Document Number)

Carr, W., & Kemmis, S. (1985). *Becoming Critical. Education, Knowledge and Action Research* London: Palmer Press.

CDRA. (1999). *Development Practitioners. Artists of the Invisible. Annual Report 1998/99*: CDRAo. Document Number)

Chambers, R. (1983). *Rural Development. Putting the Last First*. New York: Longman.

Chambers, R. (1995). Poverty and Livelihoods: Whose Reality Counts? *Institute of Development Studies, Discussion Paper* (347).

Chambers, R. (1996). "Poverty and Livelihoods: Whose Reality Counts?" *Development Studies*.

Chambers, R. (2004). Ideas for Development: Reflecting Fowards. *IDS Working Paper*(238).

Chambers, R., & Conway, G. R. (1991). "Sustainable Rural Livelihoods: Practical Concepts for the 21st Century". *Institute of Development Studies Discussion paper* (296)

Chilisa, B. & Preece, J. (2005). *Research Methods for Adult Educators in Africa*. Capetown: UNESCO.

Chimhowu A., & Hulme, D. (2006). "Livelihood Dynamics in Planned and Spontaneous Resettlement in Zimbabwe: Converging and Vulnerable". *World Development*, 34(4), 728-750.

Cleaver, F. (2005). The Inequality of Social Capital and the Reproduction of Chronic Poverty. *World Development*, 33(6), 893-906.

Cock, J. (2007). *The War Against Ourselves - Nature, Power and Justice*, Johannesburg: Wits University Press.

Coetzee, J. K. (2001). Modernisation Theory. In Coetzee, J.K., Graff, J., Hendricks, F., & Wood J., (Eds.), *Development. Theory, Policy, and Practice* (pp. 26-43). Cape Town: Oxford University Press.

Cohen, L., Manion, M. & Morrison, K. (Eds.). (2000). *Research Methods in Education*. (5th ed.) London: Routledge Falmer.

Cooper, L. (2006). The trade union as a 'learning organisation'? A case study of informal learning in a collective, social-action organisational context. *Journal of Education*, 39, 27-46.

Cooper, L., & Walters, S. (Eds.). (2009). *Learning/Work. Turning work and learning inside out*. Capetown: Human Sciences Research Council.

Correa, C. M. (2001). Traditional Knowledge and Intellectual Property. Issues and Options Surrounding the Protection of Knowledge. A Discussion Paper (Publication. Retrieved July 2008, from Quaker United Nations Office: <http://www.quno.org>

Crisp, J. (1983). National Security, Human Rights and Population Displacements Luwero District, Uganda, January-December 1983. *Review of African Political Economy*(27/28), 164-174.

Cunningham, P. M. (1996). Community Education and Community Development. In A. C. Tuijnman (Ed.), *International Encyclopedia of Adult Education and Training* (2nd ed.). Paris: Elsevier Science Ltd.

DANIDA (2005). *A Joint Evaluation. Uganda's Plan for the Modernisation of Agriculture*. DANIDA.

Davids, I. (2005). Poverty in South Africa: a Development Management Perspective. In I. D. F. T. K. J. Maphunye (Ed.), *Participatory Development in South Africa: A development Management Perspective*. Pretoria: Van Schaik Publishers.

Davies, S. (1996). *Adapted Livelihoods. Coping with Food Insecurity in the Malian Sahel*. London: Macmillan Press.

Davis, I. (2004). Progress in analysis of Social Vulnerability and Capacity. In Greg Bankoff, Georg Frerks & D. Hilhorst (Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 128-144). London: Earthscan.

Davis, M. (2000). Planet of Slums. *New Left Review*.

Dei, G. J. (2000). Rethinking the role of IKS in the Academy. *International Journal of Inclusive Education*, 4(2), 21.

Delgado, C., (2010). *Food Security: The Need for Multilateral Action*. Washington D.C: The World Bank.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2005). *The Sage Handbook of Qualitative Research*. (3rd ed.). London: Sage.

Devereux, S. (2001). Livelihood Insecurity and Social Protection: A Re-emerging Issue in Rural Development. *Development Policy Review*, 19(4), 507-519.

DFID. (2008). Sustainable Livelihoods Approaches - What have we learnt? *ESRC Research Seminar*.

Dods, R. R. (2004). Knowing ways/Ways of knowing: Reconciling science and tradition. *World Archeology*, 36(547-557).

Elbow, P. (1986). *Embracing Contraries: Explorations in Learning and Teaching*, New York: Oxford University Press.

Ellen, R., Parkes, P., & Bicker, A. (Eds.). (2000). *Indigenous Environmental Knowledge and its Transformation. Critical Anthropological Perspective*. London: Harwood Academic Publishers.

Escobar, A. (1997). The making and unmaking of the third world through Development. In Rahnama, M., & Bawtree, V., (Eds.), *The post Development Reader*. Cape town: David Philip Publishers (pty Ltd).

Esteva, G. (1993). Development. In W. Sachs (Ed.), *The Development Dictionary. A guide to knowledge as power*. (pp. 7- 25). Johannesburg; London: WUP; Zed Books.

Facundo, B. (1984). *Freire Inspired Programs in the United States and Puerto Rico: A Critical Evaluation*. Washington DC: Latino Institute.

Fafunwa, A. B., (1974) A history of Education in Nigeria. London: Allen & Unwin.

- Farr, J. (2004). Social Capital: A Conceptual History. *Political Theory*, 32(1), 27.
- Feder, G., Lau, L. J., & Slade, R. H. (1987). Does agricultural extension pay? The training and visit system in North West India'. *American Journal of Agricultural Economics*, 69(3), 9.
- Fernando, J. L. (2003). NGOs and Production of Indigenous Knowledge under the Condition of Post Modernity *Annals of American Academy of Political and Social Science*, 590.
- Fisher, W. F., & Ponniah, T. (Eds.). (2003). *Another World is Possible. Popular Alternatives to Globalisation at the World Social Forum*. London: Zed Books.
- Fitzgerald, P., McLennan, A., & Munslow, B. (Eds.). (1997). *Managing Sustainable Development in South Africa* (2nd ed.). Capetown: Oxford.
- Fox W. & Van Rooyen (eds) (2004) *The Quest for Sustainable Development*, Capetown: Juta & Company Ltd.
- Freire, A. M. A., & Macedo, D. (Eds.). (2001). *The Paulo Freire Reader*. New York: The Continuum International Publishing Group Inc.
- Freire, P. (1972). *Pedagogy of the Oppressed*. New York: Penguin Books.
- Freire, P. (1973). *Education for Critical Consciousness*. New York: CONTINUUM.
- Freire, P. (1985). *The Politics of Education. Culture, Power and Liberation*. New York: Bergin & Garvey.
- Freire, P., (1973a) *Education: The Practice of Freedom*. London: Writers & Readers.
- Friedmann, H. (1982). The Political Economy of Food: The Rise and Fall of the Postwar International Food Order. *The American Journal of Sociology*, 88, S248-S286.
- Fujisuka, S. (2000). Incorporating Farmers' knowledge in International Rice Research. In R. Ellen, P. Parkes & A. Bicker (Eds.), *Indigenous Environmental Knowledge and its Transformation. Critical Anthropological Perspective*. London: Harwood Publishers
- Gahakwa-Rudakemwa, C. P. (1996). *Attitude of Extension Workers Towards Unified Agricultural Extension Programme (UAEP) in Uganda.*, Makerere University, Kampala.
- Gamser, M., & Appleton, H. (2000). Tinker Tiller Technical Change. People's technology and Innovation off the farm. In R. Ellen, P. Parkes & A. Bicker (Eds.), *Indigenous Environmental Knowledge and its transformation. Critical Anthropological Perspective*. London: Harwood Academic Publishers.
- George, S., & Paige, N. (1982). *Food for Beginners*. London: Writers & Readers.
- Gibbs, M. (2005). The Right to Development and Indigenous Peoples: Lessons from New Zealand. *World Development*, 33(8), 1365-1378.

Giddens, A. (1998:25-31). Risk Society: the Context of British Politics. In J. Franklin (Ed.), *The Politics of Risk Society*: Polity Press.

Giroux, H. A. (1979). Review: Paulo Freire's Approach to Radical Educational Reform. *Curriculum Inquiry*, 9(3), 15.

Giroux, H. A., (2010) Paulo Freire and the Crisis of the Political. *Power & Education* 2(3). Pp335-340. DOA: June 2011 from www.worldwords.co.uk/POWER

Giuliani, A., Wenger, R., & Dach, S. W. v. (2009). Disaster Risk Reduction: a gender and livelihood perspective [Electronic Version]. *Info Sources*. Retrieved 19 November 2009, from http://www.inforesources.ch/pdf/focus09_2.pdf

Glaser, B. G. & Strauss, A.L. (1967). *The discovery of Grounded Theory*. Chicago:

Goldsmith, E., & Mander, J. (Eds.). (2001). *The Case against the Global Economy and for a turn to localisation*. London: Earthscan.

Gordon, A. (1999). Non-Farm Rural Livelihoods [Electronic Version]. *Policy Series*,

Gorjestani, N. (2002). IK for Development: Opportunities and Challenges (Publication., from The World bank:

Gorz, A. (1999). *Reclaiming Work. Beyond the Wage-Based Society*. Cambridge: Blackwell Publishers.

Government of Uganda, (2003). *Uganda Food and Nutrition Policy*. Government of Uganda: Kampala.

Greg Bankoff, Georg Frerks, & Hilhorst, D. (Eds.). (2004). *Mapping Vulnerability. Disasters, Development and People*. London: Earthscan.

Grossman, J. (2009). Domestic Workers and Knowledge in everyday life. In Cooper L., & Walters S. (Eds.), *Learning/Work. Turning work and learning inside out*. Capetown: Human Sciences Research Council.

Grunchy, S. D. (2002). The Contribution of Universities to Sustainable Livelihoods Unpublished Article.

Guthrie W. K. C., (1986). *A history of Greek Philosophy: Volume 4, Plato: The man and his dialogues*: earlier period, Cambridge University Press.

Habbard, R. (1988). Science, Facts and Feminism. *Hypartia*, 3(1).

Habermas, J. (1972). *Knowledge and human interests* (J. Shapiro, Trans.). London: Heinemann Educational.

Haines, R. (2000). Development theory. In De Beer F., & Swanepoel, H., (eds) *Introduction to Development Studies*. New York. Oxford University Press.

Harcourt, W. (Ed.). (1994). *Feminist Perspectives on Sustainable Development*. London: Zed Books.

Harding S. (1986) *The Science Question in Feminism*, Bucks: Open University Press.

Hart, M. U. (1992). *Working and Educating for Life. Feminist and International Perspectives on Adult Education*. London: Routledge.

Hart, R. A. (1997). *Children's Participation*. New York: UNICEF, Earthscan.

Hart, T., & Vorster, I. (2006). Indigenous Knowledge on the South African Landscape. Potentials for Agricultural Development. *Urban, Rural and Economic Development Research Programme, Occasional Paper* (1).

Harvey, P. (1996). *Hybrids of Modernity. Anthropology, the nation state and the Universal exhibition*. London: Routledge.

Haverkort B., Reijntjes C., & Bayer A.W., (1992) Farming for the future. *An introduction to low-external input and sustainable agriculture*. Macmillan.

Hays, J. (2009). Learning indigenous knowledge systems. In L. Cooper & S. Walters (Eds.), *Learning/Work. Turning work and learning inside out*. Capetown: Human Sciences Research Council.

Heijmans, A. (2004). From Vulnerability to Empowerment. In Greg Bankoff, Georg Frerks & D. Hilhorst (Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 100-115). London: Earthscan.

Hesse, S., & Wissink, H. (2004). Incorporating Indigenous Knowledge Systems into the Field of Development. In Fox W., & Rooyen E.V., (Eds.), *The Quest for Sustainable Development*. Capetown: JUTA Academic.

Hilhorst, D. (2004). Complexity and Diversity: Unlocking Social Domains of Disaster Response. In Greg Bankoff, Georg Frerks & D. Hilhorst (Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 52-66). London: Earthscan.

Hilhorst, D., & Bankoff, G. (2004). Introduction: Mapping Vulnerability. In Bankoff, G., Frerks, G. & Hilhorst D., (Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 1-9). London: Earthscan.

Hooks, B., (1993). Bell Hooks speaking about Paulo Freire – the man, his work. In McLaren P., & Leonard P., (Eds.), *Paulo Freire: a critical encounter*, (pp. 146-154). New York: Routledge.

Hountondji, P. (Ed.). (1997). *Endogenous Knowledge: Research Trails*. Dakar: CODESRIA.

Howard, P. (2003). The Major Importance of 'Minor' Resources: Women and Plant Biodiversity. *Gatekeeper Series* (112).

Hussein, K. (2002). *Livelihoods Approaches Compared: A Multi-Agency Review of Current Practice*. London: DFID & ODI.

Ife, J. (2002). *Community Development: Community-based alternatives in an age of globalisation*. Australia: Longman.

Illeris, K. (2004). *The Three Dimensions of Learning. Contemporary learning theory in the tension field between the cognitive, the emotional and the Social*. Leicester: Roskilde University Press/NIACE.

Inkeles, A. (2000). Making Men Modern: On the Causes and Consequences of Individual Change in Six Developing Countries (1969). In Roberts T. J., & Hite A. Hite (Ed.), *From Modernisation to Globalisation. Perspectives on Development and Social Change*. Oxford: Blackwell Publishers Ltd.

Ireland, T. (1987). *Antonio Gramsci and Adult Education: Reflections on the Brazilian experience, Manchester Monographs*. Oxford: University of Manchester.

Israel, J. (1990). Critical theory 1990. Epistemology and sociology of Knowledge. A Hegelian undertaking. *Sociological Perspectives*, 33(1), 111-128.

John, E. L. (1994). *Paulo Freire: Pedagogy of Liberation*. Florida: Kreiger Publishing Company.

John, V. M. (2009). 'Communities of Learning and Action?': A case study of the Human Rights, Democracy and Development project, 1999 – 2005, PhD Thesis. Pietermaritzburg: School of Adult and Higher Education, University of KwaZulu-Natal.

Johnson, R. (1979) in Clarke, J., Crichter, C., & Johnson R., (eds) *Working Class Culture: Studies in History and theory*. London. Hutchinson.

Kaggwa, D., Kafeero, F., Nagawa, F., & Agnes, Y. (n.d). *Food Security through the market. PMA project Policy Briefing paper No.5*. Kampala: ACODE/EAVEDCO.

Kalland, A. (2000). Indigenous Knowledge: Prospects and Limitations. In R. Ellen, P. Parkes & A. Bicker (Eds.), *Indigenous Environmental Knowledge and its Transformations. Critical Anthropological Perspective* London: Harwood Academic Publishers.

Kane, L. (2001). *Popular Education and Social Change in Latin America*. London: Latin America Bureau.

Kane, L. (2003). Making education work for the powerless. *Adult Learning*, 15(4), 22-23.

Kanji, N., & Barrientos, S. (2002). Trade Liberalisation, poverty and Livelihoods; understanding the linkages. A Review for the African Policy and Economic Departments [Electronic Version]. Retrieved 8.11.08, from <http://www.ids.ac.uk>

Kimmel, A. J. (1988). *Applied Social Research Methods Series (12)*. London: Sage publications.

- Kirunda, K. A. (2009, October 7). Without reforms in agricultural systems, hunger will still bite. *The Daily monitor*.
- Korten, D. (2001). The Failure of Bretton Woods. In Goldsmith E., & Mander J., (Eds.), *The case against the global economy & for a turn towards localisation*.
- Kraak, A. (Ed.). (2000). *Changing Modes: New Knowledge Production and its Implications for Higher Education in South Africa*. Pretoria: HSRC.
- Kumar, S. (2002) *Methods for Community Participation: A complete guide for practitioners*. ITDG. Michigan.
- Kyaddondo, D. (2004). *"Rice is a Jealous Crop": Subsistence, Markets and Morality in a Changing Economy in Eastern Uganda.*, University of Copenhagen, Copenhagen.
- Kyaddondo, D., & Kyomuhendo, S. (2000). *Food Security and Farm Enterprise Support Project: Baseline Report*. Kampala VEDCOo. Document Number)
- Lavell, A. (2004). The Lower Lempa River Valley, El Salvador: Risk Reduction and Development Project. In Greg Bankoff, Georg Frerks & D. Hilhorst (Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 53-67). London: Earthscan.
- Leedy, P. L., & Ormrod, J. E. (Eds.). (2001). *Practical Research. Planning and Design* (7th Edition, International Edition ed.). New Jersey: Pearson/Prentice-Hall.
- Lipton, M., Ellis, F., & Lipton, M. (Eds.). (1996). *Land, Labour and Livelihoods in Rural South Africa*. Durban: Indicator Press.
- Lovendal, C. R., & Knowles, M. (2005). Tomorrow's Hunger: A framework for analysing vulnerability to food security. *ESA Working Paper* (05-07).
- Ludi, E., & Bird, K. (2007). Risks and Vulnerability. *The Poverty-well being Platform*(3).
- Magrath, J. (2008). Turning up the heat: Climate Change and Poverty in Uganda. Impacts and actions for Climate Change in Uganda [Electronic Version], from <http://www.oxfam.org.uk/resource/policy/climate-change>
- Mamdani, M. (1975). Class Struggles in Uganda. *Review of African Political Economy*(4).
- Mangheni M.N. (2007) (ed) *Experiences, Innovations and Issues in Agriculture extension in Uganda. Lessons and Prospects*. Fountain Publishers: Kampala.
- Margonis, F. (2003). Paulo Freire and post-colonial dilemmas. *Studies in Philosophy and Education*, 22, 145-156.
- Mascarenhas, J., Shah, P., & Joseph, S. (Eds.). (1991). *PRA Proceedings of the February 1991 Bangalore Trainers Workshop* (Vol. 13). Bangalore.

Masiga, F. (2009, July 14). Pointing Fingers? Famine in Uganda is an act of human error. *The Daily Monitor*, from http://www.monitor.co.ug/artman/publish/business_power/

Maunder, A. H. (1972). *Agricultural Extension. A Reference manual*. Rome: FAO.

Mauro, F., & Hardison, P. D. (2000). Traditional knowledge of Indigenous and Local Communities: International Debate and Policy Initiatives. *Ecological Applications*, 10(5), 1263-1269.

May, J. (Ed.). (2000). *Poverty and Inequality in South Africa. Meeting the Challenge*. London: Zed Books.

McGovern G. S. (2000) *The third freedom. Ending hunger in our time*. Rowman & Littlefield, Maryland.

McGraw K.L., & Briggs K.H. (1989) *Knowledge acquisition: Principles and guidelines*. Prentice Hall, Michigan.

Mclaren, P., & Leonard, P. (1993). *Paulo Freire. A Critical Encounter*. London: Routledge.

McMicheal, P. (2000). Globalisation: Myths and Realities (1996). In J. T. Roberts & A. Hite (Eds.), *From Modernisation to Globalisation.. Perspectives on Development and Social Change*. Oxford: Blackwell Publishing.

Merriam, S. (1998). *Qualitative Research in case Study Applications*. San Francisco: Jossey Bass.

Merriam, S. B. (Ed.). (2001). *The New Update on Adult Learning Theory*. San Francisco: Jossey Bass.

Merriam, S. B., & Simpson, E. L. (1995). *A Guide to Research for Educators and Trainers of Adults* (2nd ed.). Florida: Kreiger Publishing Company.

Michelson, E. (1996). Beyond Galileo's Telescope: Situated Knowledge and Assessment of Experiential Learning. *Adult Education Quarterly*, 46(4), 185 - 196.

Ministry of Agriculture Animal Industry and Fisheries (2000). *Master Document of the NAADS task force and the Joint Donor Group*. Kampala: MAAIFo. Document Number)

MoFPED. (2008). *Uganda's Economic and Financial Overview 2007/08*. Retrieved 12 November, 2009. from <http://www.finance.go.ug/docs>.

MoFPED. (2009). *Budget Speech for financial year 2009/2010*. Retrieved November 2009. from http://www.finance.go.ug/docs/Budget%20Speech_FY2009_10_Final.pdf.

Mohan G., (2001) *Beyond participation; Strategies for deeper empowerment*. In Cooke B., & Kothari (eds) *Participation: The New Tyranny?* London. Zed Books.

Morris, D. (2001). Free: The Great Destroyer. In E. Goldsmith & J. Mander (Eds.), *The case against the global economy & for a turn towards localisation*. London: Earthscan Publishers.

Mouton, J. (2001). *How to succeed in your Master's and Doctoral Studies*, Pretoria, South Africa: Van Schaik Publishers.

Mpirirwe, A., & Damulira, D. (n.d). Rethinking the National Food Policy in Uganda. *Policy Research Paper*(1).

Mshana, R. R. (1992). *Insisting upon people's knowledge to resist developmentalism. Peasant Communities as Producers of Knowledge for Social Transformation in Tanzania*. Frankfurt: IKS.

Muduuli, M. C. (2001). *Uganda's Poverty Eradication Plan: National Sustainable Development Strategy Principles Tested*. Paper presented at the International Forum on National Sustainable Development Strategies.

Mukherjee, A., & UNDP (2007) For PSRP review of Armenia. 'Tigran Mets.

Muwanga J. N., (2005) Integrating *Indigenous Knowledge into Uganda's Eradication Action Plan (PEAP)*. A paper presented at the Global distance Learning course on IK in the Millennium Development Goals "28th March to 1 April. Accessed from <http://www.worldbank.org/afr/ik/dlc>

NAADS. (2000). *Master Document of the NAADS task force and Joint Donor Group*. NAADS: Entebbe.

Nafukho, F., Amutabi, M., & Otunga, R. (Eds.). (2005). *Foundations of Adult Education in Africa*. Capetown: UNESCO.

Nayenga, P. F. B. (1981). Commercial Cotton Growing in Busoga District, Uganda, 1905-1923 *African Economic History*(No. 10), 20.

Neefjes, K. (2000). *Environments and Livelihoods: Strategies for Sustainability*. London: OXFAM.

Neiland, A. E., Madakan, S. P., & Bene, C. (2005). "Traditional Management Systems, Poverty and Change in the Arid Zone Fisheries of Northern Nigeria". *Journal of Agrarian Change*, 5(1).

Noberg-Hodge, H. (2001). Local Lifeline: Rejecting Globalization - Embracing Localization. In Bennholdt-Thomsen, V., Faraclas, N. & Werlhof C. V. (Eds.), *There is an alternative: Subsistence and world resistance to corporate globalization* (pp. 10). London: Zed Books.

Nyerere J., (1968) Ujamaa: Essays on Socialism, Oxford university Press, New York.

Nyerere, J. (1976) Declaration of Dar Es Salaam: Liberated man, the purpose of Development. *Convergence* 9(4) pp 9-48.

Nygren, A. (1999). Local Knowledge in the Environment-Development Discourse. From dichotomies to situated knowledges. *Critique of Anthropology*, 19(3), 21.

- Odora-Hoppers C. A., (2002) Indigenous knowledge and the integration of knowledge systems. Towards a philosophy of articulation, Capetown, New Africa Books.
- Odora-Hoppers, C. A. (2005). *Indigenous Knowledge and the Integration of Knowledge Systems. Towards a Philosophy of Articulation*. Capetown: New Africa Book.
- Okech, A. (Ed.). (2004). *Adult Education in Uganda: Growth, Development Prospects and Challenges*. Kampala: Fountain Publishers.
- Okere, T., Njoku, C. A., & Devisch, R. (2005). All knowledge is first of all local; An Introduction. *African Development*, xxx(3), 18.
- Oliver-Smith, A. (2004). Theorising Vulnerability in a Globalised World: A Political Ecological Perspective. In Greg Bankoff, Georg Frerks & D. Hilhorst (Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 10-24). London: Earthscan.
- OPM. (2008). *Independent Evaluation of Uganda's Poverty Eradication Action Plan (PEAP). Final Synthesis Report*. Oxford: Oxford Policy Management.
- Palmer, R. A., Bresler, L., & Cooper, D. E. (Eds.). (2001). *Fifteen Modern Thinkers on Education*. London Routledge.
- Peckham, I. (2003). Freirean codifications: changing walls into windows. *Pedagogy: Critical approaches to Teaching Literature, Language, Composition, and Culture*, 3(2), 227-244.
- Pierrotti, R., & Wildcat, D. (2000). Traditional Ecological Knowledge: The third Alternative (Commentary). *Ecological Applications*, 10(5).
- Piers Blaikie, Terry Cannon, Ian Davis, & Wisner, B. (1994). *At Risk. Natural hazards, people's vulnerability and disasters*. London: Routledge.
- Pottier, J. (2003). Negotiating Local Knowledge: An Introduction. In J. Pottier, A. Bicker & P. Sillitoe (Eds.), *Negotiating Local Knowledge: Power and Identity in Development* London: Pluto Press.
- Rahman, M. H., Alpizar, K., Lund, T., Bwalya, B., & Mjøs (2008) Voluntary Efforts for Development Concerns' (VEDCO) Impact on the Kyagalanyi Piggery Group in Uganda.. *International Journal of Sustainable Crop Production*, 3(2), 5.
- Reid, D. (1995). *Sustainable Development. An Introductory Guide*. London: Earth Scan Publishers.
- Rensburg, E. J. V., & Sisitka, H. L. (2000). *Learning for Sustainability: An Environmental Education Professional Development Case Study Informing Education Policy and Practice*. Johannesburg: Learning for Sustainability Project.
- Roberts, J. T., & Hite, A. (Eds.). (2000). *From Modernisation to Globalisation. Perspectives on Development and Social Change*. Oxford: Blackwell Publishing.

Roberts, W. (2008). *The No-Nonsense Guide to World Food*. London: New Internationalist Publications.

Rouse J.T. (1987) Husserlian phenomenology and scientific realism, *Philosophy of Science*(54), pp 222-232.

Ryan, A. B. (2001). *Feminist Ways of Knowing. Towards Theorising the Person for Radical Adult Education*. Leicester: The National Organisation for Adult Learning (NIACE).

Sachs W., (1992). *The Development Dictionary: a guide to knowledge and power*. London. Zed Books.

Saul, J. S. (2006). *Development after Globalization. Theory and Practice for the Embattled South in a New Imperial Age*. London: Zed Books.

Scandrett E., (1999) Cultivating Knowledge: education, the environment and conflict. In Crowther, J., Martin I., & Shaw M., (eds) *Popular education and social movements in Scotland today*. Leicester, NIACE.

Schirato, T., & Webb, J. (2003). *Understanding Globalisation*. London: Sage Publications.

Schrijvers, J. (1993). *"The Violence of Development": a choice for intellectuals*. 1993: International Books

Scoones, I. (1998). Sustainable Rural Livelihoods. A framework for analysis. *IDS working paper*(72), 1-22.

Scoones, I., Devereux, S., & Haddad, L. (2005). Introduction: New Directions for African Agriculture. *IDS Bulletin*, 36(2).

Seabrook, J. (2003). *The No-Nonsense Guide to World Poverty*. London: New Internationalist Publications.

Semali, L. (1999). Dilemmas of Valuing African Indigenous Knowledge Literacy in Education. In L. King (Ed.), *International Review of Education*. Hamburg: Kluwer Academic Press.

Sen A., (1976) Famines as Failures of Exchange Entitlements. *Economic and Political Weekly* 11(31/33). *Special Number: Population and Poverty*. Pp 1273-1280.

Sen, A. (1999). *Development as Freedom*. Oxford: Oxford University Press.

Sen, A., Castillo, G.T. Chen, L.C., Birdsall, N., & Kleinman, A., (1989). A World to Make: Development in Perspective. *Daedalus* 118(1).

Seshia, S., & Scoones, I. (2003). Tracing policy connections: the politics of knowledge in the green revolution and bio-technology eras in India. *IDS working paper*, 188.

Shah, A. (2005). *Structural Adjustment - A Major cause of Poverty* [Electronic Version], from <http://www.globalissues.org/TradeRelated/SAP.asp>.

Shah, M. K., & Shah, P. (n.d). Gender Relations and Environmental Change. Gender, Environment and Livelihood Security: An alternative viewpoint from India. *IDS Bulletin*, 26(1), 7.

Shiva, V. (1993). *Monocultures of the Mind. Perspectives on Biodiversity and Biotechnology*. London Zed Books/TWN.

Shiva, V. (2001). Globalisation and Poverty. In Bennholdt-Thomsen V., N. Faraclas, N., & Werlhof C. V., (Eds.), *There is an alternative: Subsistence and Worldwide resistance to corporate globalisation*. London: Zed Books.

Shiva, V. (2001). The World Trade Organisation and Developing World Agriculture. In E. Goldsmith & J. Mander (Eds.), *The case against the global economy and for a turn towards localisation*. London: Earthscan Publications.

Shiva, V. (2003). Foundation for Science, Technology and Ecology. In W. F. Fisher & T. Ponniah (Eds.), *Another World is Possible. Popular Alternatives to Globalisation at the World Social Forum*. London: Zed Books.

Sillitoe, P. (1998). The Development of Indigenous Knowledge. A New Applied Anthropology. *Current Anthropology*, 39(2), 29.

Sillitoe, P. (2000). Let them eat cake. Indigenous Knowledge, Science and the 'Poorest of the Poor'. *Anthropology Today*, 16(6).

Sillitoe, P., Dixon, P., & Barr, J. (2005). *Indigenous Knowledge Inquiries. A methodologies Manual for Development*. Dhaka: ITDG.

Spero, J. E. (1985). *The Politics of International Economic Relations* (Third Edition ed.). New York: St. Martin's Press.

Ssali, M. J. (2009, 18 February). Big Farms May not solve out Problems. *The Daily Monitor*, p. 1,

Stromquist, N. P. (2005). The Impact of Globalisation on Education and Gender: an emergent cross-national balance *Journal of Education*(27 Kenton special Edition).

Sulaiman, R. V., & Hall, A. The Fallacy of Universal Solutions in Extension. Is ATMA the new T & V? *Link Innovative Studies* Retrieved 3/3, 2010, from http://innovationstudies.org/index.php?option=com_content&task=view&id=218&Itemid=99999 999

Swanson, B. E., Bentz, R. P., & Sofranko, A. J. (1997). *Improving Agricultural Extension: A reference Manual*. Rome: FAO.

Taylor, P. V. (1993). *The Texts of Paulo Freire*. Buckingham: Open University Press.

Taylor, T. (1986). The Establishment of a European Plantation Sector within the emerging Colonial Economy of uganda, (1902-1919). *International Journal of African Historical Studies*, 19(1).

Tedlock, B. (2000) Ethnography and Ethnographic Representation. In Denzin, N. K., & Lincoln, Y. S. (Eds.). (2005). *The Sage Handbook of Qualitative Research*. (2nd ed.). pp 455-484). CA: Sage.

The World Bank (2000). *The Kampala Declaration on Indigenous Knowledge for Sustainable Development*. Washington: The World Bank.

The World Bank (2002). *Constructing Knowledge Societies: New Challenges for Tertiary Education*. Washington D.C.: The World Bank.

The World Bank (2003). *Sustainable Development in a dynamic World. Transforming institutions, Growth and Quality of Life*. Washington: The World Bank.

The World Bank (2009) *World Development Indicators*. Washington: The World Bank. Accessed from <http://www.worldbank.org>.

Thompson, J. (1997). *Words in Edgeway-Radical Learning for Social Change*. Leicester: National Organisation for Adult Learning.

Thompson, J. (2000) *Women, Class and Education*. London. Routledge.

Thompson, J., Millstone, E., Scoones, I., Ely, A., Marshal, F., Shah, E., et al. (2007). Agri-Food System Dynamics: pathways to Sustainability in an era of uncertainty. *STEPS Working Paper*(4).

Tilbury, D., Stevenson, R. B., Fein, J., & Schreuder, D. (Eds.). (2002). *Education and Sustainability: Responding to the global change*. Cambridge: IUCN.

Trouillot, M.-R. (1988). *Peasants and Capital. Dominica on the World Economy*. London: The John Hopkins University Press.

Tuijnman, A. C. (Ed.). (1996). *International Encyclopedia of Adult Education* (Second Edition ed.). Oxford: Elsevier Science Ltd.

Turner, L. R. (2005). "Livestock, Liberalisation and Democracy: Constraints and Opportunities for Rural Livestock Producers in a Reforming Uganda". *Pro-Poor Livestock Policy Initiative (PPLPI)*(29).

Uganda Bureau of Statistics (2002). *Uganda Population and Housing Census*. Kampala.

Uganda National Council of Science and Technology. (2006). *National Indigenous Knowledge Policy for Uganda (Final Draft)*. Unpublished:

UNDP. (2007). *Uganda Human Development Report 2007. Rediscovering Agriculture for Human Development*. Kampala: United Nations Development Programme.

UNPD. (2005). *Uganda Human Development Report*: UNDP.

Usher, R., Bryant, I., & Johnson, R. (1997). *Education and the Post-Modern Challenge. Learning beyond limits* London: Routledge.

VEDCO. (1991). *Integrated people-centered rural development programme. Nyimbwa and Makulubita Sub-counties, Katikamu County, Luweero District, Uganda. Annual Programme Report* Kampala: VEDCO (document Number)

VEDCO. (1999). *A Decade of VEDCO*. Kampala: VEDCO.

VEDCO. (2003). *Evaluation Report: Three years and three months of EU support on agricultural and rural enterprises development assistance of VEDCO*. Kampala: VEDCO.

VEDCO. (2006). *PLAN-VEDCO Project Document*. VEDCO.

VEDCO. (2007). *Three-year Strategic Plan for Building Capacity of Farmers' Organisations in Agricultural Entrepreneurship (Jan 2007-2009)*. Kampala: VEDCO (document Number)

Verhelst, T. (1987). *No Life Without Roots: Culture and Development* London: Zed Books.

von Kotze, & Holloway, A. (1999). *Living with Drought. Drought Mitigation for Sustainable Livelihoods*. Capetown: David Philip Publishers.

von Kotze, A., (2009). But what will we eat? Research questions and Priorities for work and learning. In L. Cooper & S. Walters (Eds.), *Learning/Work. Turning work and lifelong learning inside out*. Capetown: Human Sciences Research Council.

von Kotze, A., (2009a). Chasing the Vultures off the Roof: AVE for Living in Sierra Leone. In Willis, P., McKenzie, S., & Harris, R., (Eds.), *Rethinking Work and Learning. Adult and Vocational Education for Social Sustainability* (pp. 11). Bonn: Springer Science+Business Media.

Vorley, B. (2002). *Sustaining Agriculture: Policy, Governance and the Future of Family-Based Farming*. London: DFID.

Walters, S. (1996). Gender and Adult Education: Training Gender-Sensitive and Feminist Adult Educators in South Africa--An Emerging Curriculum. In P. Wangoola & F. Youngman (Eds.), *Towards a Transformative Political Economy of Adult Education: Theoretical and Practical Challenges*. Illinois: LEPS Press.

Wangoola, P., & Youngman, F. (Eds.). (1996). *Towards a Transformative Political Economy of Adult Education: Theoretical and Practical Challenges*. Illinois: LEPS Press.

Warren, D. M., & Rajasekaran. (1993). Putting Local Knowledge to good use. *International Agricultural Development*, 13(4), 4.

Warren, D. M., Shkerveer, L. J., & Bronkesha, D. (Eds.). (1995). *The Cultural Dimension of Development, IKS*. London: Intermediate technology publications.

Weiler, K. (1994). "Freire and a Feminist Pedagogy of Difference." In *Politics of Liberation: Paths from Freire*, P. McLaren and C. Lankshear (Eds.), 12-40. New York: Routledge.

Whitehead, A. (2002). Tracking Livelihood Change: Theoretical, methodological and Empirical Perspectives from North-East Ghana. *Journal of Southern African Studies*, 28(3 Special Issue on Changing Livelihoods).

Willis, K. (2005:2-3). *Theories and Practices of Development*. London: Routledge.

Wisner, B. (2004). Assessment of Capability and Vulnerability. In Greg Bankoff, Georg Frerks & D. Hilhorst (Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 183-193). London: Earthscan.

Wrigley, C. C. (1959). *Crops and Wealth in Uganda: A Short Agrarian History*. Kampala: East African Institute of Social Research.

Yin, R. (2003). *Case study research: design and methods*. (3rd ed.). California: Sage.

Youe, C. P. (1979). Colonial Economic Policy in Uganda after World War 1: A Reassessment. *The International Journal of African Historical Studies*, 12(2), 270-276.

Youngman, F., (1986) *Adult Education and Socialist Pedagogy*, London: Croom Helm

Zenaida Delica-Willison, & Willison, R. (2004). Vulnerability Reduction: A Task for the Vulnerable People Themselves. In Greg Bankoff, Georg Frerks & D. Hilhorst (Eds.), *Mapping Vulnerability: Disasters, Development and People* (pp. 145-158). London: Earthscan.

Appendix I: Ethical Clearance

RESEARCH OFFICE (GOVAN MBEKI CENTRE)
WESTVILLE CAMPUS
TELEPHONE NO.: 031 – 2603587
EMAIL: ximbap@ukzn.ac.za



5 NOVEMBER 2007

MS. JD BUSINGYE (203516102)
SOCIAL WORK & DEVELOPMENT

Dear. Ms. Busingye

ETHICAL CLEARANCE: "REDUCING RISK: LOCAL KNOWLEDGE FOR LIVELIHOODS SECURITY AMONG UGANDAN SMALL HOLDER CROP FARMERS"

I wish to confirm that ethical clearance has been granted for the above project, subject to:

1. Name and contact details of Supervisor being provided on informed consent document
2. Question 3.3 of the ethical clearance form need to be correctly answered

This approval is granted provisionally and the final clearance for this project will be given once the above conditions have been met. Your Ethical Clearance Number is HSS/0634/07

Kindly forward your response to the undersigned as soon as possible

Yours faithfully


MS. PHUMELELE XIMBA
RESEARCH OFFICE

cc. Post-Graduate Studies (Lyn Marriott)
→ cc. Supervisor (Prof. A Von Kotze)

Appendix II: Informed Consent Form

INFORMED CONSENT FORM (farmers)

Dear Respondent,

My name is Janice Desire Busingye, I am a PhD student in Adult Education at the University of KwaZulu Natal in Durban, South Africa. I am currently doing my field work in Kasaala and Sambwe parishes in Bamunanika and Katikamu Sub-counties.

My Cell phone no is:

Tel: 0772-629973

Email: babayika77@yahoo.com

Details of Supervisors: Prof. Astrid von Kotze/Dr. Vaughn Mitchell John

Email: astridvonkotze@gmail.com , JohnV@ukzn.ac.za

Contacts:

Project title: Reducing Risk: Local Knowledge for Livelihoods security: A case of Ugandan Small holder farmers.

Location of the study: Kasaala and Sambwe parishes, Luwero District

Why this study?

Although poor people use their own knowledge and wisdom to survive in their communities, little research exists on what happens when that knowledge is faced with modern knowledge. In a context where farmers are operating in an environment they face numerous risks, this research aims at understanding how useful or not knowledge when confronted with risk. This research aims at finding out what happens when poor people's knowledge is faced with strategies aimed at modernising the subsistence agricultural system.

Broadly, this is a livelihoods study in which I want to understand poor people's lives, their activities, their strategies, their hazards, their risks and their agricultural knowledge. The specific questions to be answered will include:

- a) What knowledge do farmers use in farming?
- b) What importance is attached to local and modern knowledges in the farming context?
- c) What is the purpose, content and methodology of the training offered by VEDCO?
- d) What risks are farmers exposed to in farming for food or cash?
- e) How does local knowledge as a resource help farmers to deal with risks associated with farming?
- f) How do farmers avoid farming-related risks in their lives?
- g) What are the farmers' experiences with the contradictions that are inherent in having two epistemological frameworks in the same field?
- h) How do farmers resolve the contradictions between the two frameworks?
- i) What are the implications of these findings for agricultural extension training?

Research Approach:

I will be going to different places fields where you have crops and I will also visit your home. I will also be with you when you go for training. I will be in your community for eight months from today.

Research agreement between researcher and interviewee:

I will not to disclose your name and when I use names, I will use pseudo names. All information given to me will be considered confidential and will only be used for the purpose of this study. I will try my best to protect those people living vulnerable circumstances from any stress or harm during the process of interaction. You are free to withdraw from the research anytime you wish to do so, and such withdrawal will not affect your participation in the VEDCO project. The data collected will be stored in my laptop and in my house in a place where only I can access

.....
.....
.....
Signature of researcher Place Date

I understand what the research has written in this contract. I understand that my name will not be disclosed by the researcher. I allow the researcher to use the information given to her for her academic work in a confidential way that will not harm me and my family. I am aware that the thesis the researcher will write might be published in future.

.....
.....
.....
Signature of interviewee Place Date

INFORMED CONSENT FORM (Extension Workers)
--

Dear Respondent,

My name is Janice Desire Busingye, I am a PhD student in Adult Education at the University of KwaZulu Natal in Durban, South Africa. I am currently doing my field work in Kasaala and Sambwe parishes in Bamunanika and Katikamu Sub-counties.

My Cell phone no is:

Tel: 0772-629973

Email: babayika77@yahoo.com

Details of Supervisors: Prof. Astrid von Kotze/Dr. Vaughn Mitchell John

Email: astridvonkotze@gmail.com , JohnV@ukzn.ac.za

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- e) How does local knowledge as a resource help farmers to deal with risks associated with farming?
- f) How do farmers avoid farming-related risks in their lives?
- g) What are the farmers' experiences with the contradictions that are inherent in having two epistemological frameworks in the same field?
- h) How do farmers resolve the contradictions between the two frameworks?
- i) What are the implications of these findings for agricultural extension training?

Research Approach:

I will be working with you in the fields of the farmers under the PLAN project. I will attend your trainings, talk to the farmers you work with, attend meetings in your project and generally participate in the work you do. I will be working with you for eight months.

Research agreement between researcher and interviewee:

I will not to disclose your name and when I use names, I will use codes. All information given to me will be considered confidential and will only be used for the purpose of this study. I will try my best to protect those people living in vulnerable circumstances from any stress or harm during the process of interaction. You are free to withdraw from the research anytime you wish to do so, and such withdrawal will not affect your participation in the VEDCO project. The data collected will be stored in my laptop and in my house in a place where only I can access

.....
Signature of researcher	Place	Date

I understand what the research has written in this contract. I understand that my name will not be disclosed by the researcher. I allow the researcher to use the information given to her for her academic work in a confidential way that will not harm me and my family. I am aware that the thesis the researcher will write might be published in future.

.....
Signature of interviewee	Place	Date

Appendix III: Participant observation Guide. (Farmers)

- 1) Farming activities
- 2) Other productive activities
- 3) Types of crops grown
- 4) Methods of farming used
- 5) How farming was done in the past
- 6) Type of food being eaten
- 7) Activities in the household
- 8) Number and nature of people in the household
- 9) Who grows and manages what in the household
- 10) Land ownership in the household and in the community
- 11) Land utilisation
- 12) Labour distribution in the household
- 13) Hazards faced by households
- 14) Planting and weeding habits
- 15) Weather patterns and coping mechanisms
- 16) Tensions in applying knowledge (modern or local)

Appendix IV: Participant Observation Guide (VEDCO staff)

- 1) Work schedules
- 2) Activity plans
- 3) Training schedules
- 4) Training methods
- 5) Nature of training materials
- 6) Training content
- 7) Nature of interaction with farmers
- 8) Design of training materials

Appendix V: VEDCO's Organisational Structure

